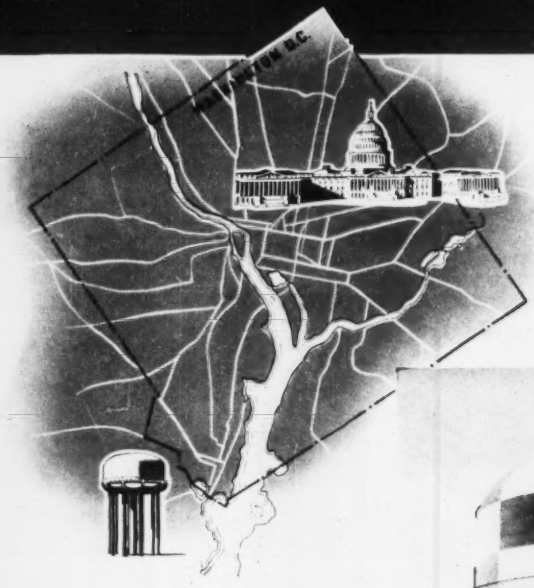
ENGINEERING NEWS-RECORD

A McGRAW-HILL PUBLICATION

Across the River
FROM THE NATION'S CAPITOL



Alexandria, Virginia contains the history of the United States within its limits. Its proximity to the nation's capitol made it a favorite city with many of our Presidents.

HORTON WATER TANK SERVES ALEXANDRIA

Historic Alexandria, Virginia, across the Potomac River from the nation's capitol, is one of the few cities that retains the historical charm of yesterday without sacrificing today's progressive outlook. Careful municipal planning makes the difference.

Like many cities, Alexandria depends on elevated storage to maintain water pressures and reduce pressure variations. Combine these features with more modern appearance and less costly maintenance, and it's easy to understand the popularity of Horton elevated water tanks.

Horton elevated tanks with ellipsoidal bottoms are built in capacities from 15,000 to 500,000 gallons. Elevated tanks with radial-cone bottoms are built in capacities from 500,000 to 3,000,000 gallons.

Write our nearest office for prices or further information.

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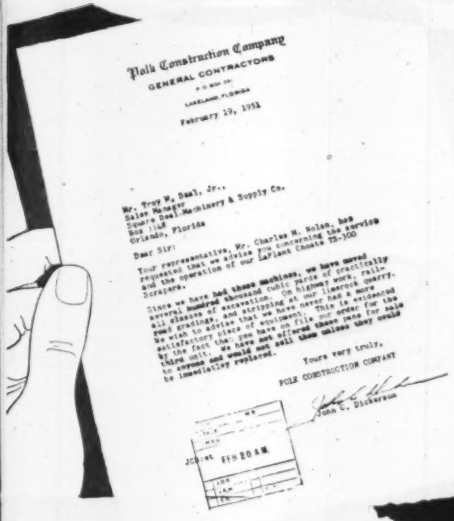
"We have never had a more satisfactory piece of equipment"



Polk Construction Company
GENERAL CONTRACTORS
LAKELAND, FLORIDA
February 19, 1951

Mr. Troy W. Deal, Jr.,
Sales Manager
Tenere Deal Machinery & Supply Co.
Box 148
Orlando, Florida

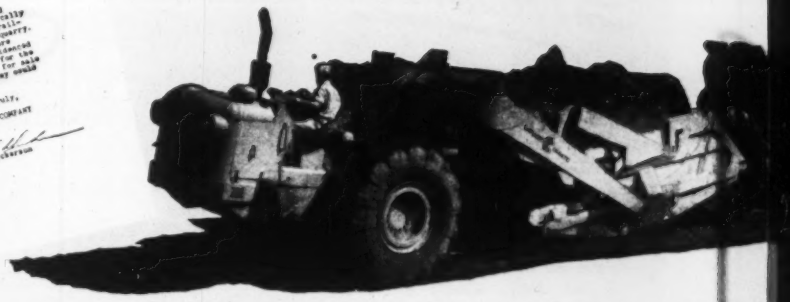
Dear Sir:

Your representative, Mr. Charles M. Nolan, has requested that we advise you concerning the service and the operation of our LaPlant Choate TS-300 Scrapers.

Since we have had these machines, we have moved several hundred thousand cubic yards of practically all classes of earth, excavating on highway work, railroad grading, and stripping at our limerock quarry. We wish to advise you that we have never had a more satisfactory piece of equipment. This is evidenced by the fact that we have on file at this office an order for a third of these machines just as soon as they would be procurable. We have not found any other make that would not sell these units if we could get them, or would not need to be immediately replaced.

Yours very truly,
POLK CONSTRUCTION COMPANY
John C. Dickerson

LaPLANT-CHOATE MOTOR SCRAPERS



● LIKE the boys at Polk Construction Company —you want *satisfactory performance* from your earthmoving equipment.

What does "satisfaction" mean?

It means the capacity to haul bigger payloads each trip . . . speeds that let you make more trips per hour. It means power to spare in the toughest going . . . power that's *useable* in the pit, on the haul road, on the fill. It means dependability . . . the ability to keep up the pace shift after shift.

In a word, *"satisfactory equipment" means LaPlant-Choate Motor Scrapers!*

Your LPC distributor can give you facts and figures on Motor Scraper performance . . . see him before you bid on your next job. LaPlant-Choate Manufacturing Co., Inc., Cedar Rapids, Iowa.

On this Polk Construction Co. job at Minneola, Florida for the State Road Dept., yardage ran over 300,000 cubic yards. Part of the job included clay stabilization work with hauls up to 5 miles one way. With heaping 14-yd. payloads, the Motor Scrapers made the 10 mile load-haul-spread cycle *at an average speed of 14 mph!*

LaPLANT-CHOATE

Cable-operated Scrapers in 6-, 8- and 14-yd. sizes for all makes of track-type tractors.

3- and 4-yd. Scrapers for track-type and rubber-tired industrial tractors.

Hydraulic and Cable-operated Dozers.

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and
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Throughout the world wherever precision measurement is required for proper use and control of water, STEVENS instruments have been a standard of quality since 1907.

Whether the need is a simple staff gage, float gage or complex remote operated recorder, there is a STEVENS instrument to meet the requirement. STEVENS recorders give automatic registration of water levels or liquid flow for daily, weekly or longer periods of unattended operation; automatic control of alarms or pumps; direct float operation or remotely controlled operation.

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Measure deep wells; gage rivers, streams, irrigation ditches and reservoirs; measure sewage flow, assemble accurate permanent records of any liquid surface fluctuation. The STEVENS line is complete in the field of water measurement and control.

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Puts interpretive data at your fingertips. Contains information on float wells and instrument shelters. Complete hydraulic tables. Information on STEVENS water measuring instruments.

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ENGINEERING NEWS-RECORD

ABP Member ABC

Volume 147 JULY 26, 1951 No. 4

WALDO G. BOWMAN
Editor

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ROBERT F. ROGER
Publisher

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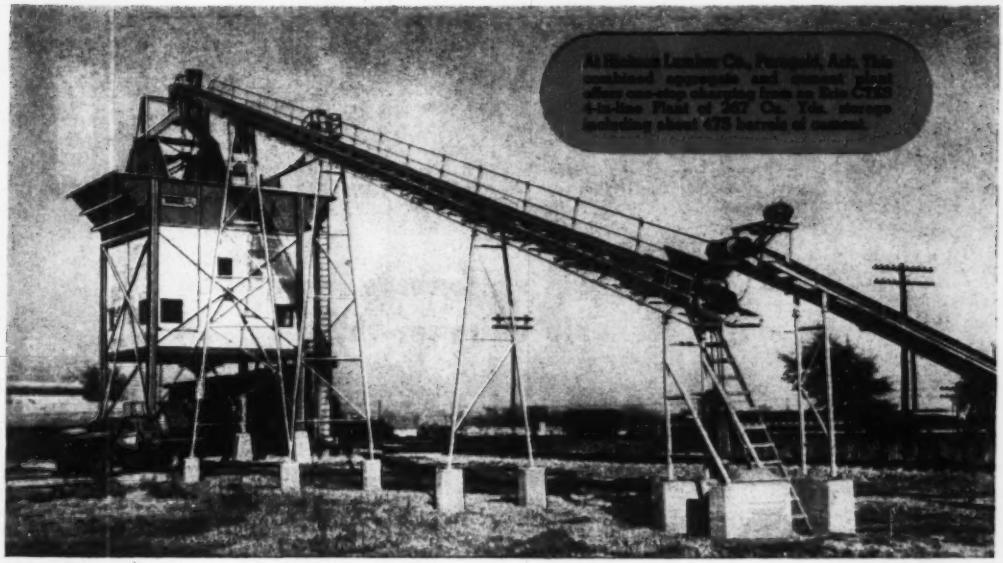

ERIE C-S SERIES *Combination* BINS

Offer 10 Compartment Arrangements

These Combination Aggregate and Cement Bins are of the knock-down semi-portable type. We build them in standard sizes with either 3 or 4 compartments in line. To meet special storage conditions we also build C-S Combination bins in 10 different top partition arrangements that provide almost any degree of material classification.

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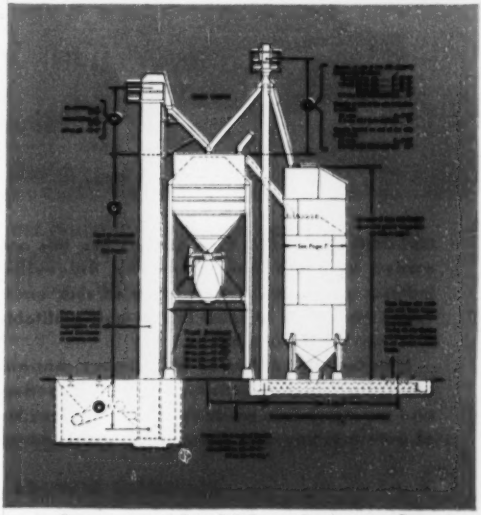
For extra high truck clearance required of large Central Mixing Plants or Concrete Products Plants 11 ft. additional column height, over the standard 20 1/3 feet, is available.



Arrangement of Erie C-S Series Combination Cement and Aggregate Bin with auxiliary Erie Silo-type ground storage of cement interconnected to main plant.

WRITE FOR BULLETIN C-S

ERIE

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OSGOOD

Rock Shovels win nationwide recognition as most profitable units for the tough jobs

OSGOOD Model 720 Rock Shovels like this one owned by H & R Stone Company, Ridgeville, Indiana, are chosen by experienced rock excavators from coast to coast as the most profitable machines for the tough jobs.

Metered air control of all primary motions (swinging, traveling, hoisting, crowding, steering, etc.) greatly speeds production and lengthens life of both machine and operator. Shock-absorbing OSGOOD Air Cushion Clutches provide smoothest swing, travel and retract motions since steam and eliminate frequent time-consuming adjustments. Outside dipper sticks give greatest strength. Side frames are built deep to keep rocks and foreign matter out of tumblers and tread belts. Crawlers are 12'9" long, 24" wide. Boom, 21'; handle, 16'; AMSCO Dipper, 1¼ cu. yd.; Cummins Diesel Engine, HBI-6. Write today for full details.

EQUIPMENT DESIGNED WITH YOUR PROFIT IN MIND

5155

The OSGOOD COMPANY

MARION, OHIO

AFFILIATED WITH THE GENERAL EXCAVATOR CO.

POWER SHOVELS, CRANES
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CAPACITIES ⅜ TO 2½ CU. YD.

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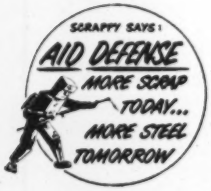
Comb YOUR Operation!

How much valuable scrap do *you* have just lying around? Old machines and equipment . . . useless parts . . . odds and ends. This is the kind of scrap that's urgently needed now. It will get more steel for everybody.

Here's a Quick Way-

Put *one* man in charge of getting all the scrap in your operation collected and turned over to your scrap dealer. Set the date for the job to be done.



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PITTSBURGH 30, PA.

The first real pipe that is plastic!

For long range economy plus ease of handling and installation, specify CARLON plastic pipe. This remarkable new piping medium brings the inherent advantages of plastics to the field of fluid, vapor and gas transmission. *Guaranteed* against rot, rust and electrolytic corrosion, it has a trouble-free service life many times longer than ordinary pipe.

CARLON pipe has been field-tested and proved superior for drinking water systems, sludge removal, drainage and irrigation systems, ventilating and cooling lines, hydraulic sluicing, and intake and exhaust piping.

Furnished in long, easy-to-handle lengths, CARLON requires a minimum number of fittings, and it can be installed rapidly without special tools or materials handling equipment. A complete line of standard I.P.T. plastic fittings is available for joining lengths of CARLON or for connecting this new pipe to previously installed metallic systems.

At present, raw material shortages are limiting the production of certain types of CARLON pipe. Every effort is being made to overcome this problem and to meet the need for CARLON . . . **the first real pipe that is plastic.**

210-CP

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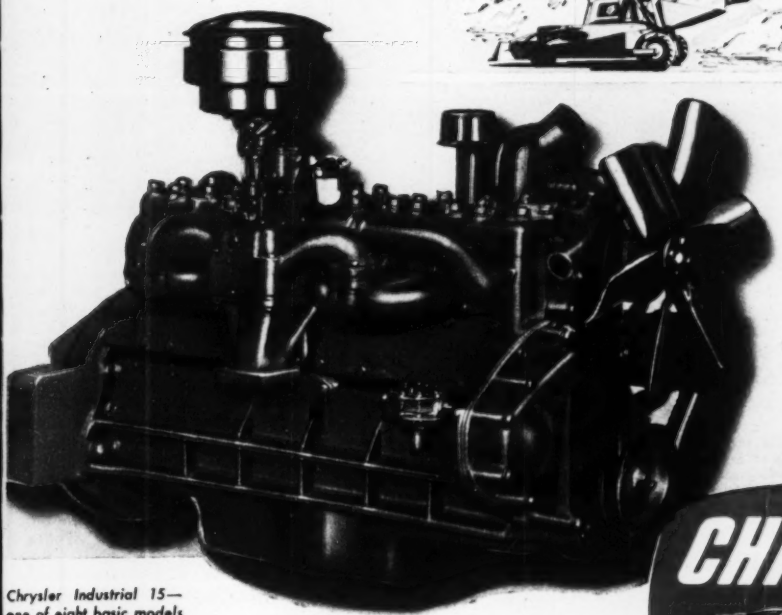


Chrysler Industrial 15—one of eight basic models

More manufacturers, more operators of industrial equipment are discovering the brilliant efficiency of Chrysler Industrial Engines on scores of different applications.

For Chrysler Industrial Engines are built *solely for industrial jobs.* Furthermore, Chrysler Industrial Engines are designed and engineered to meet the *specific working requirements* of each type of equipment they power. They can also be adapted to special regional operating conditions.

A letter of inquiry will bring an engineer well qualified to discuss your particular application. Address: *Industrial Engine Division, Chrysler Corporation, Detroit 31, Michigan.*

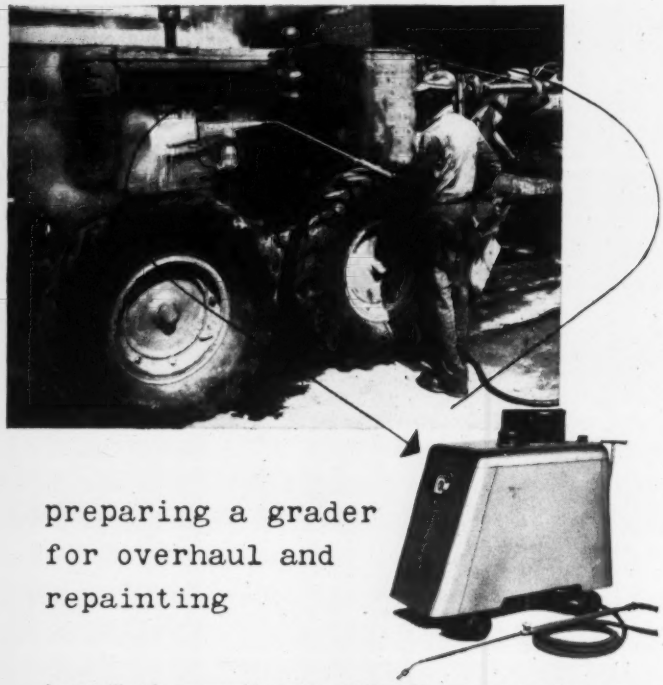
CHRYSLER

POWERPOWER WITH A PURPOSE

saved.

21 man hours

with Hypressure Jenny



preparing a grader for overhaul and repainting

Jenny will make comparable savings of time and money on any cleaning job you have. Jenny cleans so fast—10 times faster than hand methods—you can strip mud, muck and grease from your heavy equipment every day for thorough inspection, servicing and emergency repairs if necessary—right on the job. In addition to keeping heavy machinery, trucks and equipment clean and serviceable, preparing them for overhaul or repainting, Hypressure Jenny is unmatched for the fast and thorough cleaning of bridge and structural work preparatory to painting. Jenny also cleans brick . . . tile . . . stone . . . concrete . . . building exteriors, etc. faster, better and at less cost than by any other method.

Hypressure Jenny is sturdy, portable, safe and easy to use. Ordinary labor can operate it.

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NEWS BRIEFS

• **Fluoridation film coming**—Six and a half years of the Grand Rapids (Mich.) 15-year water supply fluoridation experiment have been so convincingly successful that the U. S. Public Health Service is preparing a documentary film to spread the word, according to the Grand Rapids Press. A five-year report issued last fall reported tooth decay 59.8% curtailed in the 5 to 7-year age group, cavities 25% reduced in 14-year-olds. Cost: 13 cents per capita annually—25,000 per year total. Sodium fluoride is used.

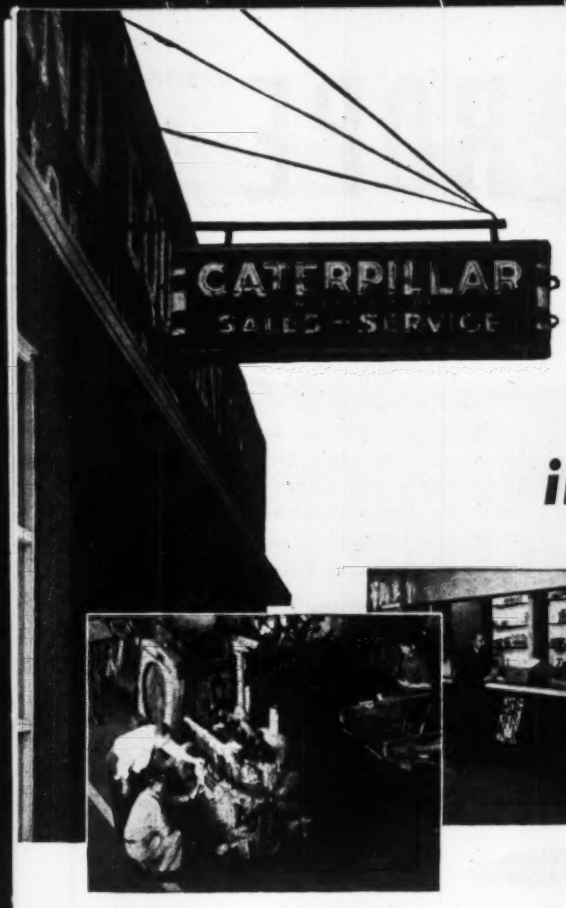
• **The missing link**—John Hart Highway, linking Prince George, B. C., with Dawson Creek, start of the Alaska Highway, will be opened by September 15, Hon. E. C. Carson, minister of public works announces. A nine-mile stretch in the center of the 300-mi. highway is now nearing completion. The new road will link Vancouver with the Alaska Highway, providing direct access to the north from the Pacific Coast.

• **Another tea party**—When the 1951 Maine State Legislature passed the sales tax, effective July 1, some of the lawmakers didn't figure that the tax would apply to city water sold to users. Now the City of Lewiston has started a legal fight with the State over collection of such a tax. City Treasurer Adrien O. Anetil says the city would not collect a sales tax on water sold within its limits. The city is in revolt against a ruling from the State Tax Assessors' office saying such a tax should be collected and turned over to the State.

• **Evacuation day**—Families were evacuated from a three-story building on Porter Street, East Boston, Mass., recently when a pile driver operating across the street, caused the building to shake dangerously. The pile driver was being used to sink heavy steel beams in the construction of Boston's new elevated express highway to the entrance of Sumner Tunnel. Police noticed the unstable condition of the building, and after calling in a building inspector, told the occupants to scram. They had already left.

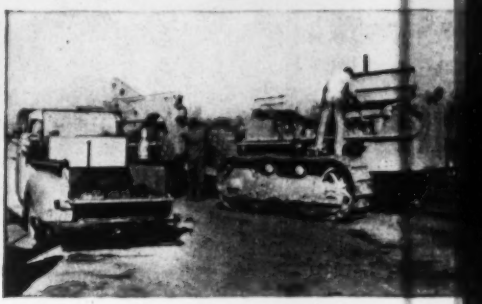
• **A golden rule**—Constitutionality of a $66,703,625 highway bond issue enacted by the 1951 Washington state legislature has been upheld by the state supreme court. Virtually all the funds from the bond issue are earmarked for four major highway con-

(*Continued on page 11*)



Your strong right arm...

in time of need



BECAUSE of the vast defense mobilization program, material shortages and extra production demands have gripped the nation. They affect particularly the heavy industries and the distributors and users of their products. And huge as America's facilities have become in recent years, they still are not large enough to keep pace with both military and civilian needs.

Nevertheless, as an owner of "Caterpillar" products, you are among the more fortunate. Your "Cat" equipment has been built for long life and to withstand severe working conditions. What's more, it is backed by a dealer organization that is world-famous for experience, accessibility, mechanical facilities and field service to keep you going "come hell or high water."

Since World War II, the already large number of "Caterpillar" sales-and-service establishments has increased greatly. Also since that time, "Caterpillar" and its dealers have developed new techniques for restoring and extending the life of "Caterpillar" products. Today, in their own shops, "Caterpillar" dealers can *rebuild* a great many worn or damaged parts which formerly required completely new replacement. In short, every dealer is richly acquainted with scores of modern ways and means for keeping your machines in good working condition. You can help by doing this:

Take your maintenance problems to your "Caterpillar" dealer* BEFORE *parts are worn beyond repair

Remember that excessively worn parts can cause damage to mating parts; that track parts, pistons and liners, crankshafts, cylinder heads, radiators and other items usually can be salvaged. Your problems are your dealer's problems. Go see him today. He'll do everything in his power to keep your machines operating. Your combined efforts will be reflected in longer equipment life.

CATERPILLAR TRACTOR CO. • PEORIA, ILLINOIS

CATERPILLAR

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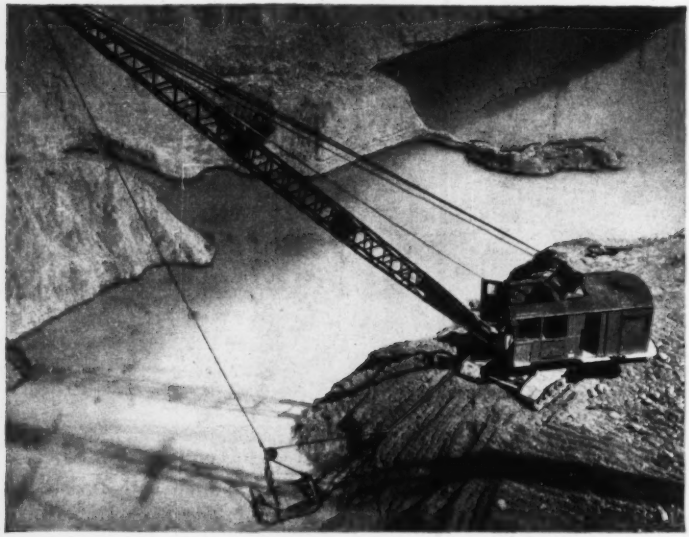
DIESEL ENGINES
TRACTORS
MOTOR GRADERS
EARTHMOVING EQUIPMENT

WIRE ROPE

You'll save time and cut costs with ROEBLING rope

FAST OPERATION AND DOLLAR SAVINGS are more important than ever in excavating and construction. One sure way to save time and expense is to specify Roebling Preformed "Blue Center" Steel Wire Rope. Here's a tough rope that stands up under shocks, strains and high speeds. Its preforming always assures maximum handling ease, better spooling and much smoother performance on the job.

Roebling makes a full line of wire rope. Have your Roebling Field Man recommend the *right* ropes for your equipment. And for longest life, get his advice on the correct use and maintenance of wire rope. It is based on experience with thousands of installations. John A. Roebling's Sons Company, Trenton 2, New Jersey.



ROEBLING ALL-PURPOSE SLINGS with the Tapered Sleeve Splice come to you ready for the job. They cost less than tucked splices . . . have the full strength of the rope. Send for the full story.

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NEWS BRIEFS . . .

struction projects—improving the Pacific highway, building a $6,500,000 bridge over the Columbia River at Kennewick, construction of farm-to-market roads in the Columbia Basin and widening the Snoqualmie Pass highway to four lanes.

• **Not saucers**—Public utility companies owning flying manhole covers in Boston and other cities, are overlooking a new bet, according to John D. Coleman, Boston, Mass. contractor, who has invented a "fly-proof" cover. Coleman says he recently demonstrated to public utility officials, in a Walpoke test, that his cover would not fly, thereby decreasing the hazard of property damage and personal injury. His cover is patented.

• **The timely thumb**—Everybody in Amsterdam, O., is getting water at the same time now, for the first time in two years. Half of the town had been getting water in the morning, half in the afternoon, and everybody seemed to have sufficient supply at night. Cause: a big leak that drained away thousands of gallons of water. Now discovered and recently repaired, Amsterdam plans to build a reservoir and filter plant to supplement its two wells.

• **The long and short of it**—Nine sites for construction of $100,000,000 in federally subsidized housing projects received approval from the Los Angeles City Council recently. In voting on the nine sites the council eight times upheld zoning variances granted the City Housing Authority by the City Planning Commission. In the ninth case, in which the planning commission had refused a zone variance, the council overruled the commission in favor of the housing authority. One councilman opposing the subsidized housing particularly objected to zoning regulations permitting erection of 13-story low-rent buildings in the Rose Hill Housing project. "The proposal to put many families who are short on money but long on children in 13-story buildings is a disgraceful disregard of good zoning practice," he declared.

• **Missing house**—When the Florida State Road Department counted its houses and found one missing it realized that possession really is nine-tenths of the law. Right-of-way Agent Robert R. Pyle counted up houses on the route of the Jacksonville expressway one day and found that one negro

(Continued on page 13)

TROJAN
Construction Co.
Standardizes on BANTAMS®

Buys 3 in 3 years for Pipeline Work

Like thousands of other Bantam owners throughout the world, President Al Johnson of Trojan Construction Co., Tulsa, Okla., is justly proud of the results he is getting. As Al puts it, "Our truck-mounted Bantams are such fast, maneuverable machines that we have standardized on them exclusively for scattered jobs and for spots inaccessible to larger rigs."

Trojan's three Bantams recently helped speed installation of new 26" pipeline through sand and rock from Edmond to Depew, Okla. . . . previously handled excavation for all river, creek and road crossings on 284 mile pipeline reclamation project through Ohio and Indiana. "What's more," Johnson reports, "considering the beating we give them, our Bantams require very little maintenance — less than $100 per year, per machine!"

You, too, can save with Bantams!

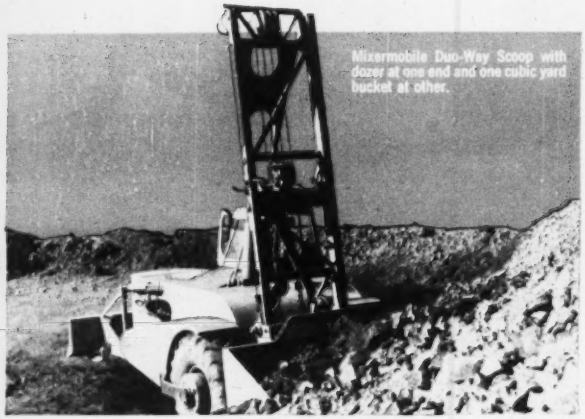
Why tie up big equipment, when so many of your jobs can be done faster, easier, at less cost with a high-speed Bantam. See your Bantam Distributor or write us direct for complete facts. Schield Bantam Co., 201 Park St., Waverly, Iowa.

Bantam mounts on new or used truck, or half track . . . goes anywhere in a hurry . . . has 7 fast-change digging, lifting and materials handling attachments for wide work range with economical "one-man" operation.

SB-C-16

SCHIELD BANTAM
Costs less — gets anywhere fast
GETS MORE JOBS DONE

Versatile MACHINES USE *Versatile* VICKERS Hydraulics



Mixermobile Duo-Way Scoop with dozer at one end and one cubic yard bucket at other.

Vickers Hydraulics are versatile . . . they provide any motion or combination of motions, any amount of power at any distance. Control is fast, smooth, accurate and reliable. The heaviest mobile equipment can be put through the most precise operations with no more physical effort than it takes to flip a lever.

Hence, in designing versatile machines, manufacturers make large use of Vickers Hydraulics. These Mixermobile Units are representative . . . they are 100% Vickers equipped, offering the advantages of undivided responsibility and a nationwide organization. For information about the many ways that Vickers Hydraulic Pumps and Controls improve performance and cut costs on mobile type machinery, write for new Catalog M-5100 or get in touch with a Vickers application engineer.

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More COST-CUTTING Applications of VICKERS HYDRAULICS

Mixermobile complete mobile concrete mixing and elevating plant.

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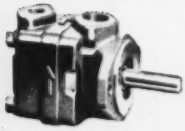
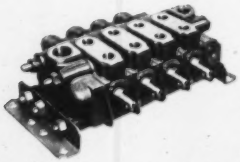
Mixermobile Model "C" Scoop, one machine for six jobs.



Vickers Balanced Vane Pumps feature automatically controlled radial and axial clearances that maintain high efficiency throughout long life.



Vickers Multiple Unit Valves consist of individual operating valve sections, assembled in almost any combination for various hydraulic control functions. Provide precise positioning under actual operating conditions . . . unaffected by surges.

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Vickers Hydraulics for Mobile Equipment

Vickers Steering Booster provides instantaneous, effortless hydraulic power for maximum maneuverability with heaviest loads on steering axle.

NEWS BRIEFS . . .

rental house was missing. The appraisers had already been by and put a $500 value on the old structure. But when Pyle re-checked, the house was gone. Another negro home on the same lot was still standing. The neighbors had only a hazy notion of what had happened. All they remembered was that in the confusion of clearing away houses, "the one next door was taken." Pyle rushed to the police station and reported the unusual "theft." The newspapers played it up. Next day, Attorney C. B. Peeler came forward and admitted that he had ordered the house moved. It belonged to him, and he had collected rent on the house for 30 years. Attorneys for the Yerkes family estate, which owned the lot, said they knew nothing of the house. Investigation by Pyle and the attorneys showed that the house had been built over the property line years ago. No surveys had been run. Peeler had simply moved "his" house rather than sell it to the road board. Pyle decided to let Peeler keep the house, and the Yerkes decided to let him keep the rent money.

• **Company road**—Hundreds of Oneida Limited employes in Oneida, N. Y., will be getting home earlier next fall; the boss has set out to wage war against traffic jams. "What benefits our employes benefits our business," said Jerry Wayland-Smith, director of Oneida Limited's non-manufacturing department as he explained why the Sherrill silver-making firm has decided to build a new road. Wayland-Smith said that it now takes more than half of the plant's estimated 3,500 employes 45 minutes to travel heavily used Route 5 three miles to Oneida. "We've been trying for years to get the state to do something about Route 5 and the traffic jams that come every day at 4 p.m. We didn't get anywhere, so we decided to do something ourselves."

The company has already turned over $10,000 and the deed to a right-of-way to the Town of Vernon, which will construct it. (Between 700 and 750 cars move out of the plant every afternoon at quitting time.)

• **More water wanted**—Directors of the Louisville, Ky., Water Co., have been discussing the possibility of raising the present capacity by 25 percent. The company is pumping 64,000,000 gpd as compared with a capacity of 80,000,000 gpd. The new General Electric Co. plant at nearby Buechel will require 16,000,000 gal., leaving the water company no margin. An engineering study will be made to see what can be done.

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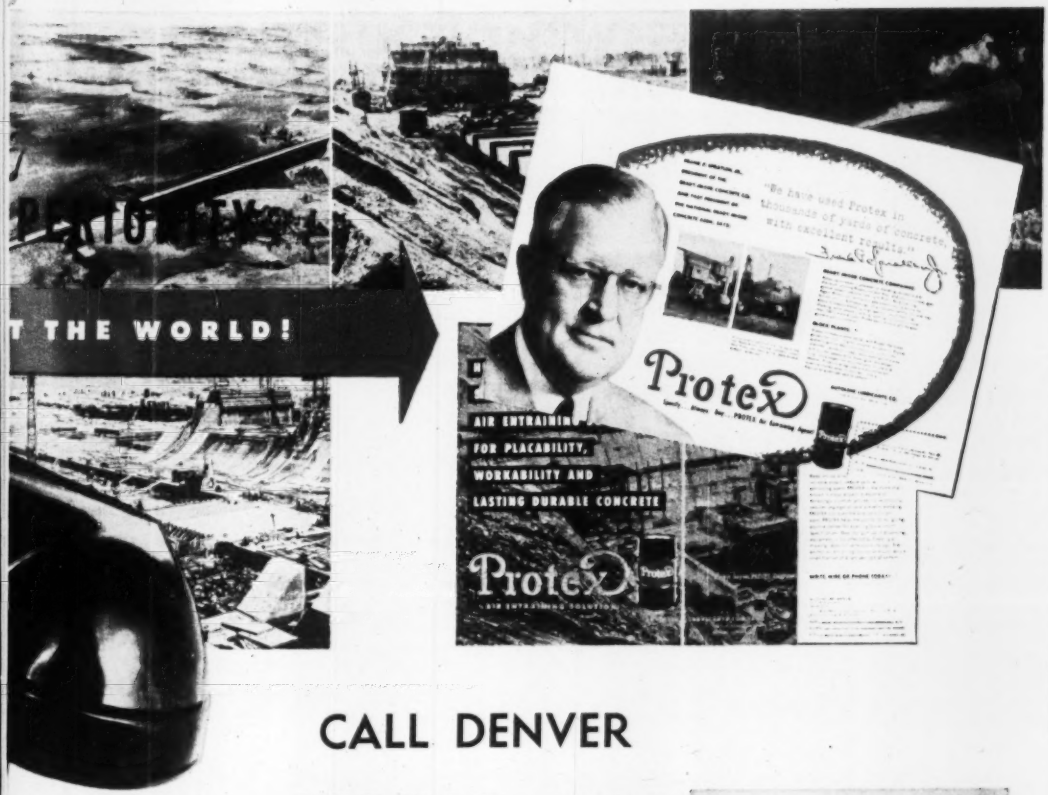

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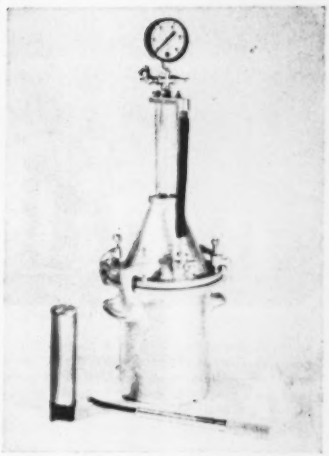

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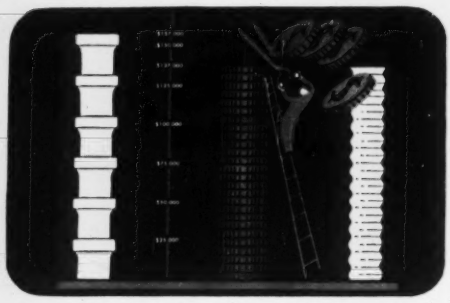
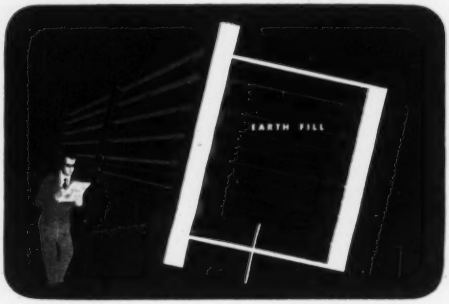
How to profit with "low level bids"

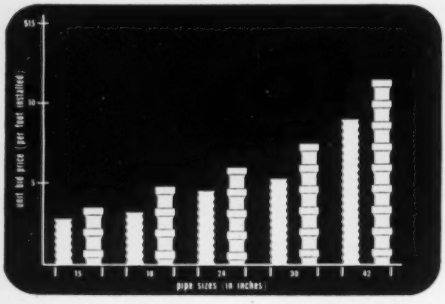
Experienced contractors bid to get the job and *retain adequate profits*. That is why so many practice "low level bidding" by considering the time and labor saving features of Armco Metal Structures. Here are four actual cases:



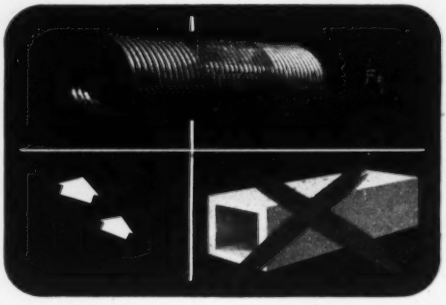
CASE I. The successful bidder on more than 22 miles of highway subdrainage for an eastern state figured the job two ways. First, he bid the job with short section, rigid pipe. Then by figuring an alternate bid using Armco Corrugated Metal Pipe he reduced his original estimate by more than $19,000.



CASE II. When a retaining wall was needed on a southeastern highway project the original plans called for monolithic design. The contractors bid price on the monolithic structure figured approximately $9.00 per square foot of facial area. By figuring the job with an Armco Bin-Type Wall the competitive and accepted bid was only $4.70 per square foot—almost 50% lower.



CASE III. Actual low bids on a midwestern drainage job show how experienced contractors bid Armco Corrugated Metal Pipe and short, sectional pipe on an installed basis. Averages for the total job indicate that it was considered necessary to bid 33.8% higher to install short, sectional pipe.



CASE IV. On drainage work for a southern highway the winning contractor was able to bid 26% lower for Armco MULTI-PLATE PIPE-ARCH than competing bids for a monolithic box structure.

Figured on an installed basis, Armco structures save money in many ways. Flexible, corrugated metal design assures ample strength without excess weight. There is no breakage, no curing, no waste, no delay. Handling is simplified —labor costs go down.

Use Armco Products on highways, railways, airports and wherever else you need economical, easy-to-install structures. Armco Drainage & Metal Products, Inc., 1901 Curtis Street, Middletown, Ohio. Export: The Armco International Corporation.

ARMCO METAL STRUCTURES

ARMCO

THE CONSTRUCTION WEEK

PREFABBING FACTS—Prefabricated housing manufacturers—despite a fast start in 1951—are hoping to equal the 1950 year-end total of 55,000 units shipped. During the first six months of 1951, they were producing at a rate 27.9% above 1950, but Regulation X and tight mortgage markets have held down sales and new orders. Prefabbers see some hope, however, in the recent decision of the Albany, Ga., housing authority, which will use prefabs for a group of permanent dwellings—first use of the units by any local housing agency.

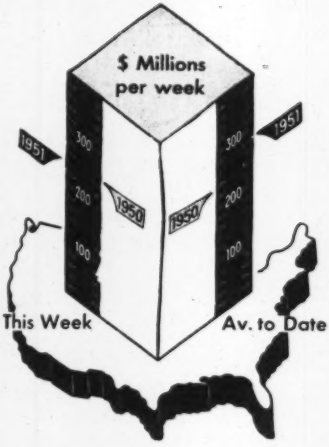
HIGHWAYS SHOULD PAY OWN WAY—California's Governor Earl Warren is against the principle of using money from the state's hard-pressed general fund for highway purposes. Recently he vetoed a bill which would have diverted $50 million from the general fund at the rate of $5 million a year. Money sought was for purchase of future rights-of-way, before areas needed for road expansion were highly developed.

GOVERNMENT COMPETITION UPHELD—The U. S. Court of Claims ruled against five Virginia apartment builders who sought $159,235 from the federal government which they claimed they lost because the government continued to rent nearby war housing apartments at $29 per month, after the group had completed new housing in 1949. Ruled against were: Cherrywood Apartments, Inc.; Oakwood Apartments, Inc.; Apple-wood Apartments, Inc.; Woodside Building Corp.; and Woodland Park, Inc.—all at or near Front Royal, Va. The court ruled that the government had not promised to end its war housing operations as soon as privately-financed housing caught up with demand.

SUBURBS BECKON—Canadian business is moving out from the center of most large cities to the suburbs, according to a national survey made by the Canadian Association of Real Estate Boards. Of 30 cities surveyed, decentralization is reported by 20 for commercial space users, by 13 for office space users and by 22 for manufacturing concerns.

HISTORY, MOVE OVER—Newington—the little New Hampshire town that dates from 1621, and whose existence is being threatened by Air Force plans to expand the Portsmouth Air Base (ENR July 5, p. 24)—has taken its fight for survival to Washington. But the Air Force defends its choice of site; claims that the Portsmouth-Newington area is best available location for long-range jet bombers for strategic air defense against enemy attack on the East Coast. Citizens contend there is plenty of room for a large air base nearby which would dislocate no residents.

UNFINISHED BUSINESS—The Aluminum Company of America will leave the lower six floors of its new 30-story Pittsburgh office building (ENR Feb. 17, 1949, p. 46) unfinished, by request of the Defense Production Authority. Structural steel is almost all in place and upper floors will be completed and faced with aluminum panels—which have already been fabricated. First six floors will be faced with temporary materials. Alcoa has had to make numerous war-dictated materials substitutions since plans for its new building were drawn.



Contracts by type of work

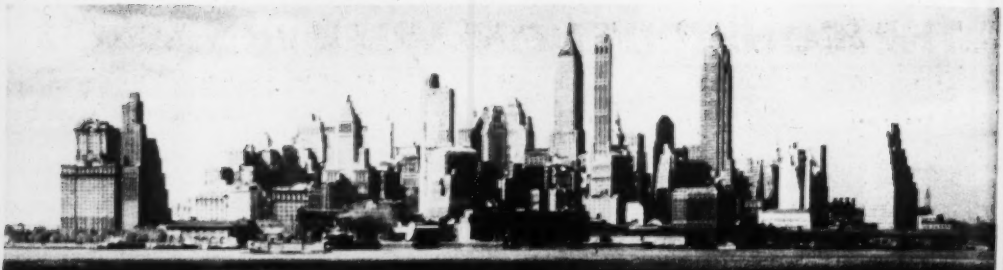
	This Week	Cumulative, 30 wks 1951	1950	% chge
Waterworks	$4.3	$131.3	$131.3	—
Sewerage	5.6	183.1	148.3	+23
Bridges	10.1	191.6	227.4	−15
Highways	32.1	674.9	755.3	−11
Earthwork, Waterways	5.9	330.1	295.4	+12
Buildings:				
Public	44.5	1,393.1	966.1	+44
Housg., pub.	9.7	516.9	153.9	+236
Housg., priv.	28.8	1,144.2	2,159.7	−47
Commercial	17.3	402.5	553.8	−27
Industrial	59.2	2,569.2	686.9	+274
Unclassified	34.4	1,124.7	762.1	+48
Total	**251.9**	**8,661.6**	**6,840.2**	**+27**

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $66,000; industrial buildings, $82,000; other buildings, $300,000.

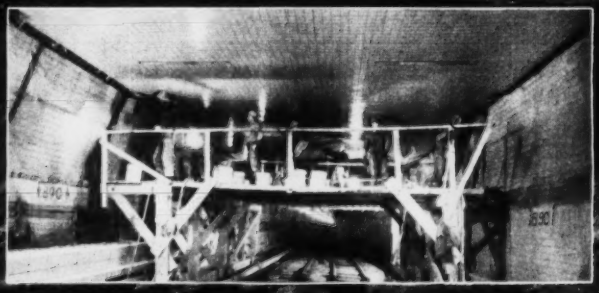
ENR COST INDEX

Index Base = 100		1913	1926	1949
Constr. Cost	July '51	542.36	260.71	113.70
Bldg. Cost	July '51	400.36	216.42	113.81
Volume	June '51	501	204	145

(Other business news on p. 75)



13 Fathoms under the East River



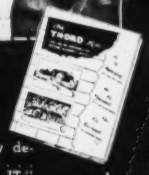
Above photo shows "WATERPLUG Crew" at work, in New York City's famous Battery Tunnels, East River, New York.

Great Engineers Never Guess

Tunnel engineers and men, who work many fathoms under rivers and harbors in every large city, know exactly what WATERPLUG will do and how to use it to withstand years of wear and tear in tubes, tunnels and underground structures.

Since 1912, WATERPLUG has been an essential item on the "must list" of every construction engineer, architect and superintendent, throughout every civilized land, where large projects, in rivers and harbors, are carried to successful conclusion. WATERPLUG, powerful quick-setting hydraulic cement, is employed on large construction jobs for sealing steel-sheet piling, grouting of anchor bolts; also, to prevent possibility of vibration, such as high-powered ventilator fans, in tubes and tunnels, or other fine machinery and equipment, where slightest vibration would cause high maintenance cost.

THORITE, quickset mortar, for patching and filling blistered concrete, where reinforcing rods are exposed and corroded, in heavy mass structures. High reinforced-concrete buildings, cornices, sills, lintels, belt courses, grain elevators, highway bridges, railroad bridges and underpasses, dams, reservoirs, water-treating tanks, filtration plants and cracks in masonry buildings of all types.



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NEW EAGLE, PENNSYLVANIA

PENSIONS AND MOBILITY: CONSTRUCTION PROBLEM

Pensions and other welfare benefits will raise some complex problems for construction within the next few years. The growing trend toward expanding employee welfare programs threatens to make it harder to hire workers—especially skilled workers—for certain kinds of jobs.

Pensions are a problem for all industry, of course. But they can be particularly difficult for construction because construction is a migratory industry. Workers—or at least some of them—must be able to move from areas where work is light to places where the big jobs are being done.

Pensions and welfare benefits—of the wrong kind—could seriously disrupt this normal pattern. If membership in a welfare plan requires staying with one employer, or in one restricted area, workers are not likely to travel very far. Rather than give up the right to collect benefits, they are inclined to stay in one place—and thus make it difficult for contractors with big jobs outside the main labor markets to find enough labor.

• **Just beginning**—Pensions are not much of a problem yet in construction.

But the handwriting on the wall is clear. Pensions are becoming a major factor in bargaining in other industries, and welfare plans of all sorts are increasingly important in the building trades. It's only a matter of time before competition from these fields, with an added boost from wage controls, spreads the welfare movement through all industry—including construction.

With the trend toward welfare programs apparently clear, contractors will have to learn to live with them. Financially, they should not be too great a problem; it's the effect on the mobility of labor that's likely to be most important. What this effect will be depends on the kind of welfare plans that become popular.

• **The prospects**—If the building trades are good examples—and they should be—construction welfare plans are not likely to encourage mobility.

In New York City, welfare programs in the building trades are based on membership in the local union. That means workers won't leave the area unless they go to an out-of-state job with a contractor-member of the New York City bargaining group. Otherwise they become affiliated with another local and lose their welfare benefits. This wouldn't matter if the new local also had a welfare program—except that a worker must wait, usually six months, before becoming eligible. And for the most important benefits, such as pensions for permanent disability, the waiting period is much longer, usually ten years.

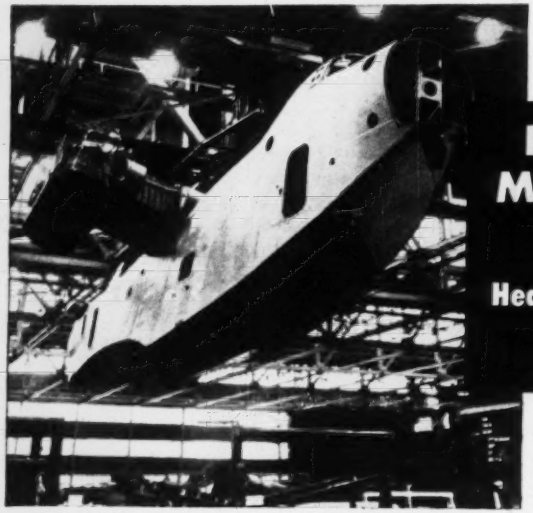
Thus these programs provide a real incentive for workers to stay in New York. A gap of six months in eligibility for medical and life insurance, and ten years for disability pensions, means that a seasonal worker might never be covered.

Contractors will have to develop another kind of welfare plan.

The waiting period might be lowered, so workers won't be penalized for moving. But that probably would not work for pensions—no one wants to hire a man and start paying his pension after only two or three years of work.

Coverage might be based simply on membership in the national union, rather than membership in a certain local. One problem here is that standards for welfare benefits, like wage standards, vary considerably in the U. S. There are other possibilities, including government administration of all benefits.

Alternative plans all involve difficulties. But it looks as if the employer-financed welfare plan is here to stay—in one form or another. Contractors will have to develop some solution to this problem if they want to find enough workers.



Designed and built by The Glenn L. Martin Co. for destruction of enemy denizens of the deep, this P-5M-1 Marlin anti-submarine seaplane is one of many being readied for use by the U. S. Navy.

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Over 90,000 sq. feet Glazed in Three Exposures in Glenn L. Martin Buildings

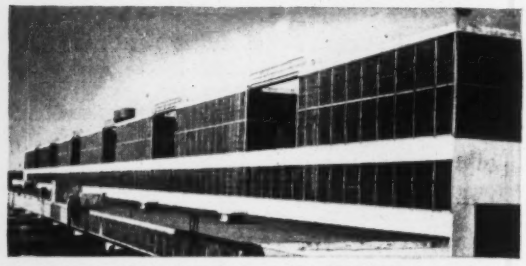
Appreciation of the vital role played by regulated daylighting in keeping production at high level prompted management of The Glenn L. Martin Company to explore thoroughly the advantages of heat absorbing and glare reducing glass for its huge plant in Baltimore, Md.

Following conclusive tests, Coolite was specified in "B" and "C" buildings where it has since demonstrated its ability to control sunlight and solar heat to meet exacting requirements.

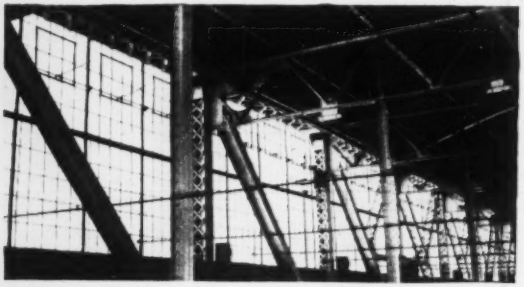
According to Martin Company executives, Coolite, Heat Absorbing and Glare Reducing Glass admits maximum natural light while excluding blinding sun rays that cause eye fatigue and lead to inefficiency and production declines.

In buildings glazed with Coolite, glare reduced, there have been no complaints from workers due to sunlight glare. Yet on bright days electric lights can be completely shut off in the final assembly areas. As a result, the company considers Coolite glass indispensable in all the south, west and east exposures of its buildings.

Like many others you too may find that whether used in new construction or modernization, Coolite, Heat Absorbing and Glare Reducing Glass can provide increased efficiency and economy. For details, see your nearby Mississippi Glass distributor.



West elevation of The Glenn L. Martin Co's "B" building glazed with Coolite, Heat Absorbing and Glare Reducing Glass.



Interior view of Coolite in a southern exposure. Note even distribution of soft, comfortable daylight.

Rolled, Figured and Wired Glass by Mississippi is *"Visioneered"* for better daylight illumination. Available in a variety of patterns and surface finishes, all scientifically designed to distribute light to best advantage.

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Flood Control—New Appraisal Needed

To the people in the flood-damaged areas of Kansas and Missouri, the 1903 flood had been remembered as their greatest disaster. Just as the San Francisco earthquake occupies the pinnacle of fame in California—to be mentioned in awe not unmixed with some pride—so had this great flood been regarded that the Kaw brought down into the Missouri nearly a half century ago. Also, somewhat like the San Francisco earthquake, the 1903 flood had not been accorded much chance to be duplicated—at least not enough to overcome inertia and opposition to a program for necessary flood protection facilities.

But now the 1903 flood has been duplicated, in fact, exceeded—and probably by a wide margin. The result is that many previous beliefs about floods in this particular river valley are challenged. Not only must those who have opposed the presently recommended control measures—including members of Congress as well as local residents—re-examine their earlier decisions, but the engineering flood planners will have to review the adequacy of their own plans in the light of the new experience.

All this is not to say that procrastination may not have paid. It may be cheaper to stand the present loss—and gamble against its quick reoccurence—than to pay for complete protection; only new cost-benefit comparisons can determine that. And it may well be that the existing plan of the Army Engineers takes such a flood as this into account to the limit of economic feasibility. But there can be no question that a new appraisal is needed all along the line.

What degree of protection is afforded by the current plans cannot be determined until the size of the present flood can be computed with reasonable accuracy. One estimate puts the flow over 500,000 cfs at Kansas City—twice the 1903 flood of 260,00 cfs.

Should, however, more careful computation scale this estimate down to 400,000 cfs or less, then the total would not be far from the Army Engineers' figure of 370,000 cfs for its "standard project flood." Under these conditions, had the 18 reservoirs and 15 levee and channel improvement projects called for by the Army Engineers' plans been in operation, the Kansas City discharge would, it was estimated, have been cut to "bankful stage", or about 120,000 cfs.

On the other hand, if the 370,000 cfs was substantially exceeded—or if there were greater concentrations of rainfall below the big storage reservoirs in the Army Engineers' plans than were used in developing the "project flood discharge"—then the current plans will not give protection against a repetition of the 1951 flood. These discharge figures are the vital bench marks from which re-appraisal must begin.

The second aspect to be examined relates to flood losses and the cost that must be assumed if they are to be averted in the future. A rough estimate of the cost of the Army Engineers' current Kaw valley flood control plan for reservoirs and local levees is $200 million, to which must be added $172 million for the multi-purpose reservoirs—part irrigation, part flood control—mostly under the Bureau of Reclamation. Quick guesses have been made that the 1951 loss alone will total as much as $875 million—or more than any previous flood in the country's history.

This huge loss figure, however, may be exaggerated, and probably includes losses of wages and business. Such losses have not been given much weight in figuring cost-benefit ratios for flood control projects heretofore. Perhaps they should, although then the whole question of national vs. regional or local payment for flood protection must be reconsidered. In any event the principles of economic justification for flood control are ripe for re-appraisal.

Of controlling importance too is a determination of the flood control value of a large number of small upstream reservoirs compared with fewer but larger storage facilities farther downstream. Upstream reservoirs have had a popular appeal because they seem cheaper, don't take out of production so much valuable land, have the backing of soil conservation enthusiasts and are, of course, useful for irrigation storage.

That such dams, however, are of questionable utility as the key to effective flood control was emphasized in the Kansas flood. Although four were in service they exerted no appreciable effect on the flood stages downstream. Even if all of the 14 authorized small upstream reservoirs had been completed and full, they would have stored only 2,275,000 acre-ft, about half of which was allocated to irrigation. The Army Engineers' proposed Tuttle Creek reservoir near Manhattan would of itself have stored 2,280,000 acre-ft—all for flood control and all in the main valley where the potential for flood damage is greatest.

It is the big downstream reservoirs near the mouths of tributaries or on the main stem that function in flood control. Once this fact is accepted and implemented, effective insurance against a repetition of the 1951 disaster in the Kaw valley will be obtained.

Each major flood in the U. S. since 1927 has advanced the flood-control technique. This 1951 flood should do no less if its characteristics are high-lighted and its lessons applied.

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ENGINEERING NEWS-RECORD

JULY 26, 1951 VOL. 147 NO. 4

CMP begins as one-package program to spread materials

Interview with Walter C. Skuce, who guided development of the Controlled Materials Plan, shows that officials have learned from World War II, work more smoothly

To give readers a picture of what's behind the Controlled Materials Plan for construction, ENGINEERING NEWS-RECORD asked originator Walter C. Skuce some questions. Here are his answers:

[The new order, bringing construction under CMP, is due to go into effect this week. It will require authorization for projects that will use more than specified amounts of steel, copper and aluminum and authorizes builders of small jobs to act as self-certifiers (ENR July 19, p. 24).]

Q. What is the purpose of CMP?

A. CMP is a means of authorizing production and construction within the available supply of steel, copper and aluminum.

Q. How do you balance requirements with supply?

A. We secure from the producers of controlled materials their production capacity by given quarters, match them against requirements by the claimant agencies and strike a balance. Materials are allotted to each one of the claimants. That claimant has to divide the allotment among his respective programs, and then by projects under those programs.

Q. Why do you include construction under CMP this time when conditions are different from what they were in World War II?

A. Construction is a much more important factor in the present build-up than it was when CMP took effect in War II. The present construction regulation is not dissimilar to the one used then; it even has the same number, CMP Regulation 6. Construction—in getting its materials—needs to have just as much authority as any other industry, and it needs to be kept within certain limits so that all programs share the supply equitably.

Q. You are including all categories of construction and resources expansion and not just that essential to defense. Why?

A. It is very difficult to measure the relative importance of a cantonment, housing for the families of servicemen, hospitals, and the public services—transportation, power and light, gas and sewage disposal systems, for example. We cannot take care of direct military construction only; the military services also sponsor a great deal of privately-financed construction. Equitable distribution requires a very broad responsibility for all our citizens. It is hard to determine whether the last army tank is more important than a fitting on a sewer system for the city of New York; personally, I'd give higher significance to the fitting.

Q. Can you explain the function of claimant agencies and NPA industry divisions in estimating requirements, making final determinations and allotting controlled materials to projects?

A. In the last war, many of the functions and responsibilities for resource expansion were placed with the War Production Board. It was difficult to segregate resource responsibility from product responsibility. This time Congress required that existing agencies be utilized in carrying out the defense program. NPA thus assigned to resource responsibility, for example, public roads and civil airports. These went to agencies in the Commerce Department.

Then it retained product responsibility within itself. NPA has been charged with responsibility for commercial and industrial building because this kind of construction commonly relates to production needs and commercial requirements.

NPA makes a sharp demarcation between area and responsibilities. The agency having responsibility for residential expansion claims the materials for house building, but only for the materials that go into the construction projects. It doesn't claim materials for Class B products—all the standard products that are normally manufactured and carried in stock.

Q. Do the claimant agencies act on the CMP-4C applications or their equivalent? How?

A. They have to get 4C information. Some already have forms adequate for the information. Each claimant agency has to gather the basic information with respect to controlled materials needs.

Q. How do they use this informa-

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High equipment production forecast

Makers of construction equipment have little to worry about—as far as materials shortages are concerned—according to the present attitude of mobilization officials in Washington.

Top officials in the Defense Production Adiminstration and National Production Authority appear anxious to keep the output of construction equipment above the level required simply to meet military and allied demands.

It appears as though the $1-billion construction equipment industry is in for a high level of activity over the next year or two.

• **Not so much military**—The boomlet will not approach the feverish production of World War II. Military and allied demands are not nearly so great and are not expected to be, short of a major war. Strictly military demand has been relatively small since Korea. The armed forces had on hand adequate stocks of machinery to handle most of the early post-Korea construction projects.

Related programs, such as those of the Atomic Energy Commission and foreign aid, are taking considerable equipment may require much more.

The only foreseeable barrier to increased equipment production is the possibility of materials shortages—and Washington officials are ready to write that off.

• **Help that counts**—Controllers have backed up this thinking with comparatively liberal metals allocations. Under

(Continued on page 24)

One-package CMP . . .

(Continued from page 23)

tion to determine which projects will get the materials?

A. They use it as a means of determining what construction projects they will authorize and what amounts of materials those projects will get. All claimant agencies submit their requirements for resources expansion and for residential, commercial and industrial construction to the requirements committee. There, each area of construction competes against other claimants, and set amounts of steel, copper and aluminum are established for the construction programs of the claimant agencies. Each claimant agency is required to live within the totals allotted to it in carrying out its program.

Q. Will you have CMP-4C returns in time to measure 4th quarter requirements and make allotments?

A. We will have what we need by July 20; we will allow a few days after that to pick up the late comers. For the large residential units—they will come a week or so later. We'll treat them as a separate category.

Q. Why is construction getting a smaller share of the total structural steel supply than it got a year ago?

A. I don't know that this is the case. At present, I'm told that the demands for structural steel greatly exceed supply. A large portion of structural steel goes into production that is needed in industrial expansion—maritime vessels, barges, railroads, power production, mines, machinery, military vehicles and products. Consequently, the product take is greater, also requirements for allied countries and military off-shore establishments. The balance goes to the construction industry.

Q. What industrial projects will be able to get structural steel they need?

A. I don't know what the program determination is going to be by categories at the start. Every effort will be made not to cause undue hardship where small quantities are required.

Q. If new projects are deferred, will they get allotments in later quarters?

A. It is too early to answer that.

Q. How much structural steel will be taken by the self-certifying smaller projects and by MRO orders?

A. Experience has proven that the large majority of users in any category take only a small percentage of the total supply. A heavy paper load is eliminated by estimating this take and allowing small users to get their supplies by self-certification. We are able to control that area under other control guides. By self-certification for the small user, we get more equitable distribution of supplies within a tight supply picture.

ARCHITECT OF CMP—Walter C. Skuce had an active part in originating and directing CMP in World War II. He is top man this time. When not working for Uncle Sam, he is manager of the transportation products division of Owens Corning Fiberglas Corp.

Q. When will the new CMP construction order be ready?

A. A one-package order revoking M-4, and including a conservation order and the amendment of CMP Regulation 6, will be out the week of July 23. The conservation order will continue list A of M-4 in effect, prohibiting amusement, entertainment and recreation construction.

High production . . .

(Continued from page 23)

the Controlled Materials Plan for the third quarter, DPA alloted for construction equipment a total of 663,500 tons of steel, 5,200,000 lbs of copper and 2,375,000 lbs of aluminum. This amounts to roughly 82% of the metal requested by manufacturers in their applications.

Fourth-quarter allocations are expected to be even more liberal. Allotments of carbon steel—the most important metal to equipment makers—and aluminum probably will be substantially larger than those for the third quarter. Copper, short in supply for almost every use, will be shaved somewhat below present levels.

• **Sore spot**—The single serious bottleneck not yet solved is in tractor parts, which have been held up for lack of alloys for tread shoes, links, pins and rollers. The shortage has already jammed the production schedule of one major tractor manufacturer.

Those in the know look for the next two years to be much better, production-wise, for the equipment makers than was 1950. So far, crane and shovel producers have had the best of it. Their deliveries were up more than 20% in the first three months of 1951 over the last quarter of 1950. Demand for replacement parts, especially for tractors, is exceeding supply.

Cost estimate raised for New Jersey Turnpike

New Jersey's 118-mile toll turnpike will cost $250,000,000, according to revised estimates submitted to the bondholders by the New Jersey Turnpike Authority.

Late in 1949, when sale of bonds was being negotiated, the proposed turnpike was estimated to cost $183.9 million. Since then, increases in the cost of materials and delays resulting from the defense program have resulted in two upward revisions, first to $220 million and now to $250 million.

Delays in getting steel for bridges at the north end of the turnpike also have resulted in postponing the opening date for the last six miles. That section probably will not be opened to traffic until early in 1952.

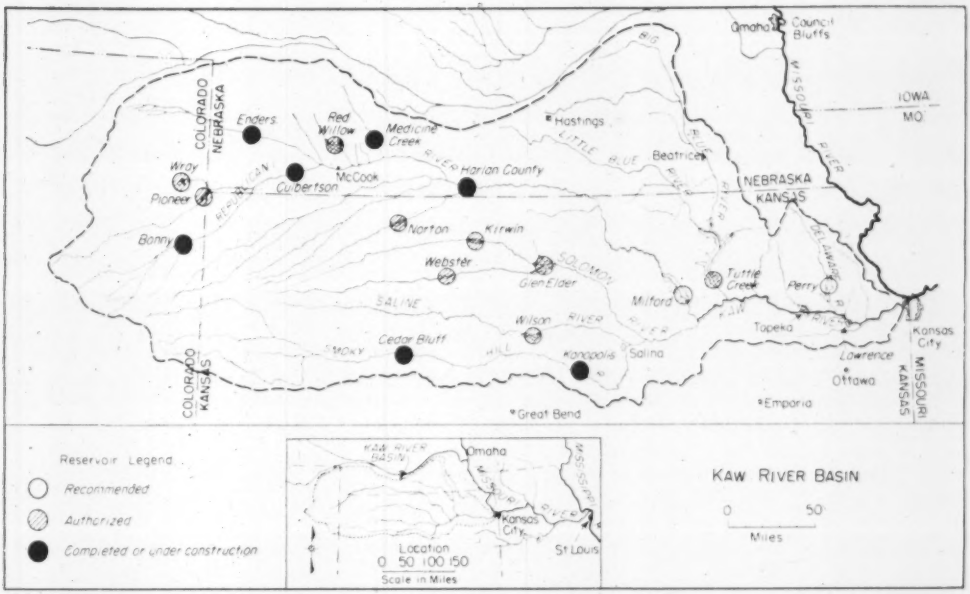
Seattle construction for power exceeds $30 million

Work costing more than $30,000,000 is under construction for Seattle, Wash., City Light.

Almost half of this is accounted for by a $14,688,780 contract for construction of Ross powerhouse on the Skagit hydroelectric project (ENR Apr 19, p. 30). Guy F. Atkinson Co. has just started work. Orders have been placed for more than $11,000,000 in equipment for the plant.

Elsewhere on the Skagit project, the Morrison-Knudsen Co. is completing a $1,942,567 repair and improvement job on Diablo Dam while the Donald W. Close Co. has installed electric equipment for a new Gorge generator.

A 115- and 230-kv transmission line is under way to carry the additional power from the project to Seattle. Smith & White has the $1,547,327 contract. Brazier Construction Co. is completing a $449,577 control building at Bothell, near the Seattle end of the line.



KAW BASIN—The 18 reservoirs shown would cost less to complete than the damage done by this month's flood.

Flood waters roll into history as new marks are set, controls talk revives

Engineers point out that permanent Kaw River flood controls could be installed for less than half the cost of this one disaster

As the big Kansas flood rolled down the Missouri toward St. Louis last week, Maj. Gen. Lewis A. Pick, Army Chief of Engineers, pressed home the point that a $300-million investment in control works on the Kaw River could have prevented the great disaster. In fact, he and his engineers stated flatly that completion of the proposed plan for controlling the Kaw would hold a flood like the recent one to bank-full proportions, with only minor overflows.

That would mean, no calamitous overtopping of protective works. If the Kaw could have been controlled in that way this time, the $875 million loss estimated by the Army Engineers for Kansas and Missouri would have been reduced to a relatively negligible amount. It probably would not have reached 10% of that amount.

The reduction in flood stages that Gen. Pick was talking about would be effected by carrying out the complete plan, including multiple-purpose reclamation dams authorized for the Kaw watershed. These dams—part of the overall Pick-Sloan Plan for the Missouri River Basin—would add about 2,000,000 acre-ft of storage capacity. The Reclamation Bureau has built four multiple-purpose dams and is completing another in the Kaw River Basin with reservoir capacity of nearly 1,000,000 acre-ft.

• **Costs**—For all 14 projects in the Reclamation program, the estimated cost is about $175 million. (Note: The accompanying table may show only 11, but Bureau of Reclamation says three others have been authorized: Lovewell on Whiterock Creek, 94,000 acre-ft; Angus on Little Blue River, 285,000 acre-ft; and Oberlin on Sappa Creek, 42,800 acre-ft.)

Complete development of the water conservation program for the Kaw Basin would come to about $375 million, including $200 million for projects of the Army Engineers. Cost of the works that directly affect flood control—completed, under construction and proposed—would total roughly $300 million.

Last week's claims for the Kaw River Flood-Control Program appear much more sweeping than those made in the 1949 report of the Army Engineers (printed by the House Public Works Committee as House Document 642 of the 81st Congress, second session). For the "standard project

(Continued on page 26)

KAW BASIN RESERVOIRS IN THE MISSOURI BASIN PLAN

Corps of Engineers

Reservoir	Total Storage—Acre-ft
Kanopolis	450,000
Harlan County	850,000
Tuttle Creek	2,280,000
Pioneer	45,500
Red Willow	109,000
Milford	740,000
Perry	360,000
	4,834,500*

* Of this total 175,500 acre-ft are for irrigation.

Bureau of Reclamation

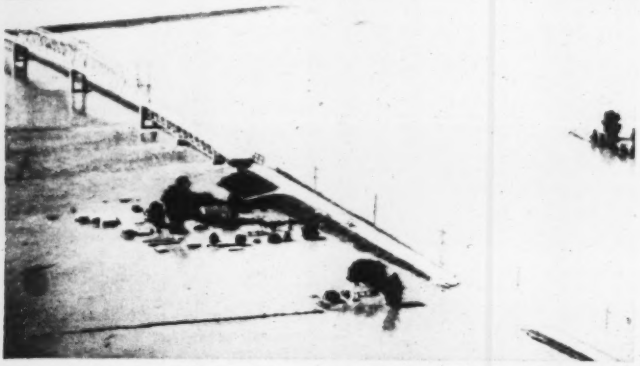
Reservoir	Total Storage—Acre-ft
Culbertson	170,000
Medicine Creek	93,000
Norton	16,000
Enders	74,000
Wray	8,000
Bonny	182,000
Glen Elder	379,100
Kirwin	200,000
Webster	255,000
Cedar Bluff	352,000
Wilson	388,900
	2,118,000*

* Of the USBR's total proposed storage, 1,017,000 acre-ft are planned for flood control—the rest for irrigation, conservation and silting.

HIGH WATER . . . . . .

MANHATTAN—First city to bear brunt of Kaw River flood as it gathered force from tributary discharges. It kept its highway bridge but lost a railroad crossing.

TOPEKA—Crane attempts to keep debris from blocking what little remains of the Melan Bridge openings as Kaw rose to a stage of 3½ ft higher than in 1903.



KANSAS CITY—Flood cuts through approaches to Liberty Bend bridge, built 2 years ago across a new cutoff that shortened Missouri River course by 14 miles. (All photos on this page by Wide World)

Flood waters roll . . .

(*Continued from page 25*)

flood" studies in the report—representing a flood that would be exceeded only on rare occasions—the proposed reservoir plan would reduce the discharge at Topeka from 340,000 to 94,000 cfs, and at Kansas City from 370,000 to 120,000 cfs.

• **The big one**—But the phenomenal flood of this month exceeded the dimensions of the standard project flood. Tentative discharge figures by the U. S. Weather Bureau indicate peak flows of 372,00 cfs at Topeka on July 13 and 450,000 cfs at Kansas City on July 14. The Army Engineers estimate for Kansas City is higher—508,000 cfs.

Even these discharges could have been cut down and contained by the complete flood-control program for the Kaw Basin, according to the Army Engineers. They say that damage could have been restricted to unprotected rural land, with only minimum losses for urban areas.

That is making a bigger claim than appeared in the 1949 report. With the reservoir plan in operation, the report says that 13 of the 15 major floods from 1902 to 1945 would have been reduced to bankfull stage, and that the two worst floods—in 1903 and 1945—would have caused only minor overflows.

Only tangible losses were included by the Army Engineers in their estimate last week of the $875-million cost in Kansas and Missouri. The figure takes in losses of property, crops and payrolls, but no intangible costs that cannot be estimated with any assurance. President Truman and many other observers stepped up the loss estimate to more than $1 billion as the crest moved down the Big Muddy to the Mississippi.

• **Harness for the Kaw**—At much less than half the cost of this one disaster, Army Engineers pointed out, the Kaw River could be controlled. If the Kaw had been in full flood-control harness this year, the rampaging waters could not have broken loose to wreak havoc from Manhattan, Kan., to St. Louis and beyond.

The force of the flood is having its effects on Congress. Members of the Senate Public Works Committee flew west last weekend to inspect the damage. They aim to do more for flood control—restore some of the flood-control cuts made on the House side in the Army Engineer Civil Functions Appropriation bill for the current fiscal year, and perhaps vote additional project funds besides. In its present temper, Congress will approve the added flood-control money.

. . . into history

For eastern Kansas and adjoining states, the July floods in nearly all streams topped the highest water marks of the past. Only in a few places did the legendary flood of 1844 go to a higher level, as shown by the accompanying table of flood crests.

• **Trouble-maker**—The Kaw was the main cause of damage. On this river, the crest topped the previous maximum flood of 1903 at Lawrence but did not equal the 1844 marks at three other points: 34.1 at Manhattan, as compared with 40.0; 36.26 at Topeka, as against 42.2; and 36.0 in the Missouri at the junction with that stream (Kansas City), contrasted with 38.0 in the flood of 107 years ago.

FLOOD CRESTS

River and Station	Flood Stg. (in ft.)	Previous Maximum Stage	Previous Maximum Year	Flood Record Crest July '51 Stage	Flood Record Crest July '51 Date
MISSOURI BASIN:					
Smoky Hill River:					
Enterprise, Kans.	26	30.2	1941	33.6	7/14
Kansas River:					
Manhattan, Kans.	17	40.0	1844		
		27.9	1903		
		25.9	1935	34.1	7/14
Topeka, Kans.	21	42.2	1844		
		32.7	1903	36.26	7/13
Lawrence, Kans.	18	28.5	1903	30.1	7/13
Marais des Cygnes:					
Ottawa, Kans.	24	40.0	1844		
		37.6	1938	42.5	7/12
Missouri River:					
Kansas City, Mo.	22	38.0	1844		
		34.95	1903	36.0	7/14
Boonville, Mo.	21	32.7	1844		
		30.9	1903	32.8	7/18
			1944		
Jefferson City, Mo.	23	33.5	1903	34.2	7/19
St. Charles, Mo.	25	40.1	1844		
		36.8	1903	37.5	7/20
ARKANSAS BASIN:					
Neosho River:					
Emporia, Kans.	23	28.4	1941	29.4	7/11
Burlington, Kans.	27	36.73	1948	41.5	7/12
Chanute, Kans.	20	30.9	1948	38.6	7/13
MISSISSIPPI BASIN:					
Upper Mississippi:					
St. Louis, Mo.	30	41.4	1844		
		40.3	1947	40.3	7/21-23
Cape Girardeau, Mo.	32	42.5	1844	41.7	7/24

(Note: Last date is forecast crest as of July 20.)

To control the Kaw, the Army Engineers want to build five additional dams—three of them already authorized and two recommended. Two

(*Continued on page 28*)

HAZARDS . . . . . .

FLOODING—Kaw River (foreground) overflows Kansas City's central industrial district just before it empties into Missouri at left of Inter City Viaduct (left).

FIRE—Floating oil tank, ignited by contact with power line, started fires that burned three days and destroyed a dozen blocks of buildings in Kansas City. (Wide World photos)

FORCES—Wild-running Missouri River barges hit Hannibal Bridge swing span, holding it open and isolating Kansas City's airport. Note floodwall that saved airport buildings. (Acme photo)

Flood waters . . .

Army dams—Kanopolis (in operation) and Harlan County (approaching completion)—proved 1,300,000 acre-ft of storage, 900,000 acre-ft of it for flood control.

The five added reservoirs would have a total capacity of 3.5 million acre-ft, including 2.5 million for flood control. Two of the authorized dams are relatively small and unimportant for controlling major Kaw River floods, but the third—Tuttle Creek—would have the biggest reservoir in the basin, with a capacity of 2,280,000 acre-ft.

Eleven multiple-purpose reclamation reservoirs were added in 1944 to the authorized Kaw Basin program. These eleven reservoirs would have a total capacity of more than 2 million acre-ft, including flood storage of 1 million acre-ft. Three of the added dams have been completed; their total reservoir capacity is 608,000 acre-ft, of which 342,000 is for flood-control storage.

UNEXPECTED—Bridge between Argentine and Armourdale districts of Kansas City took beating from floating oil tanks as well as from more normal debris (Wide World photo.)

McGraw files counter claim against J. & L. Steel

F. H. McGraw Co. has answered a $3,301,375 damage suit by Jones & Laughlin Steel Corp.—arising out of an allegedly defective coal-washing plant in Fayette County, Pa.—with a counter claim for $3,612,612.

The steel company's suit (ENR June 21, p. 24) charges that McGraw failed to perform as required by agreement in the construction of the plant and asserts that McGraw had not fully completed the work required.

Jones & Laughlin alleges that the engineering design, plans and specifications prepared for the plant "were and are unsound, inadequate and defective." The steel firm contends further that it has been obliged to keep and operate other plants in order to process coal which should be processed in the plant contemplated and constructed under the contract.

The construction firm contends in its counter suit that the plant was built "as the term completion is defined and within the time specified." McGraw states that construction was delayed and interrupted by "acts, neglects and defaults" on the part of Jones & Laughlin and J & L employees, and by strikes and labor disputes.

For damages sustained thereby, McGraw is asking $2,250,000. In addition, the construction company claims that J & L made substantial changes in the coal-washing plant (over the protests of the contractor) which caused damage to McGraw of $1,000,000.

Construction runs ahead of schedule on Mt. Morris Dam

Completion of the Mt. Morris Dam at Mt. Morris, N. Y. (ENR July 20, 1950, p. 46), ahead of schedule is almost a certainty, according to the Corps of Engineers.

The dam, largest in the state, now 91% complete, will be finished before next June. The dam, built to harness flood waters of the Genesee River started to serve its purpose last November.

It was then that the 220-ft high spillways reached a height above the large conduits which will regulate the flow of water. Although the gates to control the water were still inoperative, a backlog of water formed behind the dam.

Costing an estimated $25 million, the dam is designed to prevent flood damage between Mt. Morris, highest point of the Genesee River, to its outlet in Lake Ontario. Rochester, 40-miles downstream, has often felt the rush of torrential waters which will be eliminated by the structure.

So far 687,000 cu yd of concrete of the estimated 700,000 yards needed have already been poured. It is expected that the dam will be 97% complete Dec. 15.

An operations tower will be built atop the 250-ft parapet or main wall next year. Plans call for completion by April 1st. Most of the work on the 21 spillways, each 220-ft high, is already completed.

They are each 50 ft wide and cover most of the structure's width.

Contractors, unions team up to clean up

Disaster Corps, Inc., a non-profit, co-operative group to clean public flood damage, was organized in Kansas City, Mo. last week and now is in full operation.

Robert W. Long of the Long Construction Co., one of the largest contracting firms in Kansas City, heads the Corps as president.

The Kansas City council, meeting in special session, assigned $225,000 for flood rehabilitation and renovation of the water system.

Disaster Corps, Inc., received $25,000 of that amount to help meet payrolls. The flood emergency fund was assigned $100,000 and the water department an additional $100,000.

Two primary objectives are the aim of the unprecedented cooperative group: to restore normal water service in Kansas City's central industrial district and to get the streets opened and cleaned up as soon as possible.

• **Companies and unions**—Disaster Corps is made up of officials of private construction firms, their top supervisory personnel and equipment. The CIO and AFL unions also are in the set-up. Both unions agreed to waive scale wages in the emergency and all workers will get a flat $1.50 hourly wage in the rehabilitation program.

It is the plan to hire both union and non-union workers. But private sources in the Corps believe union personnel can handle the job. Equipment will be pooled and rented on a non-profit basis.

While some of the rehabilitation cost will come from the city, much of the fund needed for the work is expected to be made available by the federal government.

There has been some good news on the extent of damage to streets in the central industrial district. Silt generally is much less deep than expected. In many sections it is reported no worse than that left after a heavy rain.

So far, Kansas City, Kansas, has not officially joined Disaster Corps, apparently feeling it can do the job with city equipment and personnel.

Long and Perrin D. McElroy, vice-president of the non-profit organization and head of the AFL Building and Construction Trades council here, say the huge effort of rehabilitation is progressing smoothly.

Generally, the attitude of workers and supervisors is exceptionally co-operative, they say, but there is one serious disappointment; the electrical contracting industry combine of employees and the union has refused to join the effort.

Road group aids Point 4 road building; technical training to be stressed

Private enterprise will help the U. S., under Point 4, to develop technical know-how for road building in Latin America, the near East and Southern Asia. That is the purpose of an agreement announced last week between the Technical Cooperation Administration and the International Road Federation.

TCA put punch in the program by assigning $85,000 to the federation to get the work started. The federal grant is being matched by an equal amount in equipment and services by IRF to carry out the initial program. With these assets IRF will try to find out how Point 4 can best be utilized for highway development in the lands that badly need more transportation.

IRF is well equipped to handle its new job. For one thing, since last March it has been highway consultant to the United Nations Organization.

More basically, however, the federation is sponsored and supported by 350 U. S. firms that make and sell abroad automotive, oil, rubber and construction equipment products. In addition, IRF is actively supported by the Construction Industry Manufacturers Association (CIMA), which includes more than 100 of the leading construction equipment producers.

• **The job**—IRF will do three things: (1) Make on-the-ground surveys in the three areas of the world to find out what technical information is needed there for long-range road development; (2) Inaugurate Point 4 fellowships for foreign highway engineers to study in U. S. universities; and (3) Establish two pilot schools in Point 4 countries to train operators and mechanics on highway and farm equipment.

In this program, the federation will have the active cooperation of its own members and of affiliated national good roads associations in more than 30 countries. These associations collaborate closely with IRF; a number of them have been stimulated and assisted by the federation, and IRF members abroad give steady support to the local good roads groups.

• **Engineers and reports**—Three outstanding engineers are being recruited to make surveys in Latin America, South Asia and the Near East. Each man will spend three months on the job; IRF has promised to present a report on each area to Technical Cooperation Administrator Henry G. Bennett.

From these reports will be assessed particularly the need for technical informatoin—to be translated into the languages of the various countries—and for educational and promotional films on highway development, construction and maintenance. IRF and the engineers on the three missions are not called upon to study transportation needs or to recommend programs and methods of financing.

On two phases of its cooperative agreement, the federation will undertake practical action immediately. Two pilot schools to train operators and mechanics will be set up in Bolivia and Mexico. These schools will be patterned after existing schools already in operation at Lima by IRF's Peruvian affiliate. They make use of local shops of IRF members. The member companies assist by sending qualified instructors from the U. S.

• **Many helpers**—Many firms cooperate in the school program. Among them—to name a few—are Ford, International Harvester, Studebaker, Reo, GMC, Caterpillar, Barber-Greene, Armco, Lincoln (welding), and others, including oil and tire companies.

Eleven one-year fellowships for highway engineers will be set up for next September at Yale and Ohio State Universities. The three IRF engineer-consultants may have a hand in selection of fellowship students.

From the fellowships and pilot schools, the federation will develop tested information on the value and use of these methods for Point 4 purposes. For IRF, the program will be carried out under the supervision of Robert O. Swain, executive director, Washington, D. C.

U. S. Chamber of Commerce seeks road finance study

A comprehensive study of the nation's highway needs and of equitable means for raising funds to meet those needs has been proposed by the U. S. Chamber of Commerce.

Harold F. Hammond, manager of the chamber's Transportation and Communications Department, outlined the plan at the recent annual meeting of the Truck-Trailer Manufacturers Association in Chicago. An adequate study, he said, would cost around one million dollars.

"To get such a study under way, it is proposed that industry leaders in the highway field form an advisory committee which could prepare the research program, raise the funds and take the necessary steps to put the study into action," he said.

"No matter how the highway financing problem is approached," said Mr. Hammond, "the answer eventually centers on the need for more user revenues, such as registration fees and fuel taxes, to do the job. The national chamber recognizes the fact that highway users should pay the larger part of the cost of highways of general use, namely, the primary road system. The contributions of highway users to the cost of building and maintaining highway systems should be through collection of special taxes or fees based on logical [use] standards."

Evidence that the public is willing to pay for better roads is seen, said the speaker, in its readiness to support toll roads. The chamber, he added, sees no objection to toll roads where state authorities can find no other means of financing needed highways.

SHAPING UP—Forms are rising for the spillway of Idaho Power Co.'s $19-million C. J. Strike hydroelectric development on the Snake River (ENR Mar. 29, p. 234). First earth-fill dam to be build by Idaho Power, it will contain nearly 2 million cu ft of material. Spillway will consist of 230,000 cu yds of concrete, topped with eight radial gates each 34 ft long and 22 ft high. It will discharge a flood of 100,000 cfs at normal pond elevation. Contractor is Morrison-Knudsen.

Ohio public housing halted by court

Plans for public housing projects throughout Ohio were at a complete standstill last week, as the result of a quirk in state law and a split decision of the Ohio Supreme Court.

The court's action—with five justices holding unconstitutional a 1949 law granting tax exemption to federal public housing projects and two favoring it—came in a test case involving the Cincinnati Metropolitan Housing Authority. Without tax-exemption, the state cannot live up to requirements for federal financing—tax-exemption—and so planning for future construction is halted.

By a quirk of state law, the court's 5-2 decision against the law does not automatically wipe the measure off the books. Statutes provide that six of the court's seven justices must declare a law unconstitutional before it is invalidated. But observers agreed that the split decision was too close for the comfort of any bonding house to undertake any new bond issues for public housing—the possibility of one justice changing his views in another case is too great.

• **History**—Ohio is one of the few states that has not passed laws specifically providing that public housing projects, financed in part by the federal government, should be tax-free.

In a test case in 1943, the state high court denied such tax exemption, and the federal government took over ownership of and control of all existing public housing projects in the state so that federal-aid units might be absolved of taxes.

To get around this state of affairs a bi-partisan group in the legislature pushed through an amendment in 1949 that exempted "public property to be used for public purposes" from taxation.

To test this amendment, the Cincinnati authority acquired property and filed an application for tax exemption with the Board of Tax Appeals. The application was granted, but a taxpayers' suit was then filed in the Supreme Court, on the contention that public housing is not necessarily a "public purpose" in the sense that a road might be.

Thus the court actually upheld the law because two justices voted for it—although five "dissented."

• **Effect**—The Cleveland Housing Authority and others in the state have received authorization from the federal government for 20,000 new units—but nothing can be done on these now until either a re-hearing is granted or another test case definitely decides the issue.

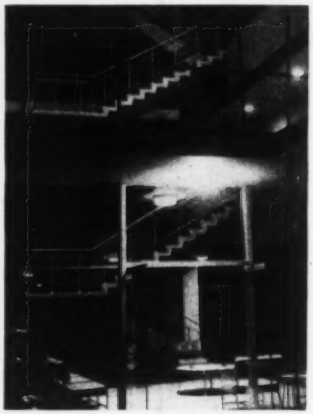
U. S. starts research to conserve own materials

Under direction of its new chairman, James W. Follin, the Inter-Departmental Construction Group has awarded a $50,000 research contract aimed at finding the best means of conserving critical materials on government construction.

The group—which Follin took over on July 9—has already obtained acceptance by government departments of uniform design standards for structural steel, reinforced concrete, lumber and plumbing.

Following up, it let the $50,000 contract to the Building Research Advisory Board to find out how other savings can be made. BRAB will assemble a staff to dig into the design-construction practices and policies of the various departments, to uncover the best procedures for conserving materials and report them.

Officially, Follin's group is the building construction subcommittee of the overall conservation coordinating committee in the Defense Production Administration. Engineers, specification writers and other technical people from eleven agencies make up the membership.



CANTILEVER DESIGN—Stairway supported from floor slab and spandrel beam at each floor in the new Lever Brothers Co. Los Angeles plant. Flights are cantilever-supported from a reinforced concrete central stair beam that extends upward four floors in zig-zag fashion. Bethlehem Pacific Coast Steel Corp. fabricated reinforcing steel for beam. Steel consists of six ¾-in. bars spaced equally inside a 10-in. spiral cage of 5/16-in. rod. Engineer and contractor was the Bechtel Corp.

Committee makes report on national plumbing code

National Production Authority and Housing and Home Finance Agency have announced the joint issuance of "The Report of the Coordinating Committee for a National Plumbing Code."

It is claimed that there are approximately 1,600 plumbing codes in existence in the U. S. For example, present codes specify between 600 and 700 items of cast iron pipe. The suggested code would reduce this number, by standardization and simplification, to somewhere between 200 and 300 items.

Prime purpose of the new code proposed is to conserve scarce materials during the mobilization emergency. However, the committee is just as interested in obtaining permanent conservation. The report claims that many cities require 40% to 50% more materials in plumbing connections to eliminate health hazards than the committee feels necessary.

Already, officials of nine other federal agencies have agreed to abide by provisions in the new code to save critical materials in government building projects—including military jobs.

The report presents a recommendations of members of the Coordinating Committee and its advisory committee. It is based upon research in the field of plumbing conducted in a number of laboratories, the National Bureau of Standards, Universities of Iowa and Illinois, and the U. S. Public Health Service.

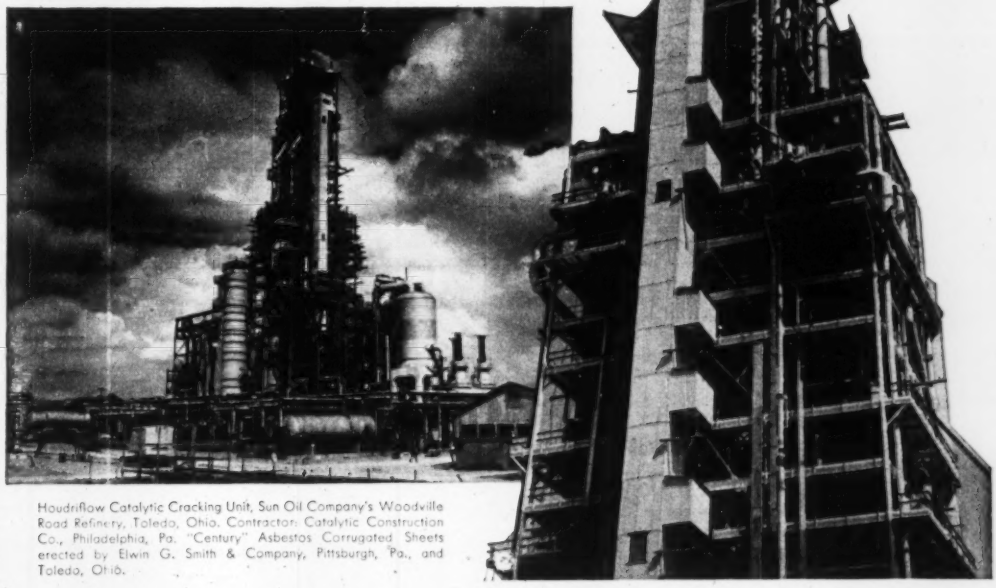
Committee membership includes representatives of the American Health Ass'n, American Society of Mechanical Engineers, American Society of Sanitary Engineering, Building Officials Conference of America, Conference of State Sanitary Engineers, National Ass'n of Master Plumbers and Western Plumbing Officials Ass'n.

Copies of the report may be obtained from the Government Printing Office, Washington 25, D. C.

Prof. Frank Richart Dies

Professor Frank E. Richart, 59, died July 16 at his home in Urbana, Ill. He had been in charge of concrete research in the college of engineering and the engineering experiment station at the University of Illinois since 1926, where his work was internationally known. President of the American Concrete Institute in 1939, he had also served as vice-president of the American Society for Testing Materials. He was also noted as the University's faculty representative on the Big Ten athletic board since 1942.

Up...up...up where the weather is rough!



Houdriflow Catalytic Cracking Unit, Sun Oil Company's Woodville Road Refinery, Toledo, Ohio. Contractor: Catalytic Construction Co., Philadelphia, Pa. "Century" Asbestos Corrugated Sheets erected by Elwin G. Smith & Company, Pittsburgh, Pa., and Toledo, Ohio.

Men and equipment are permanently protected by "Century"® Corrugated Asbestos-Cement Sheets

High on the side of this catalytic cracking tower there are no wind breaks . . . no shade . . . nothing to block driving rain and the fury of storm. Yet inside the elevator tower it's always dry . . . always protected . . . always "a nice day." "Century" Corrugated Asbestos-Cement Sheets make a completely weather-tight enclosure—give permanent protection to men and equipment.

And, despite the fact that the tower is exposed to the elements, maintenance will never be a problem. For in addition to resisting weather, "Century" Asbestos Corrugated *can not burn, rot, or rust*—rodents and termites can't hurt it. It doesn't even need protective painting to preserve it. Consider the maintenance costs these characteristics save!

"Century" Asbestos Corrugated can be applied quickly, easily, inexpensively. The large-size sheets are exceptionally strong, but they can be cut and drilled with ordinary working tools—can be fastened in place with a minimum of labor.

Whatever your building plans—new construction, expansion, or modernization—it will pay you to consider cost-saving "Century" Corrugated Asbestos-Cement Sheets for both siding and roofing. We'll be glad to send complete details on request.

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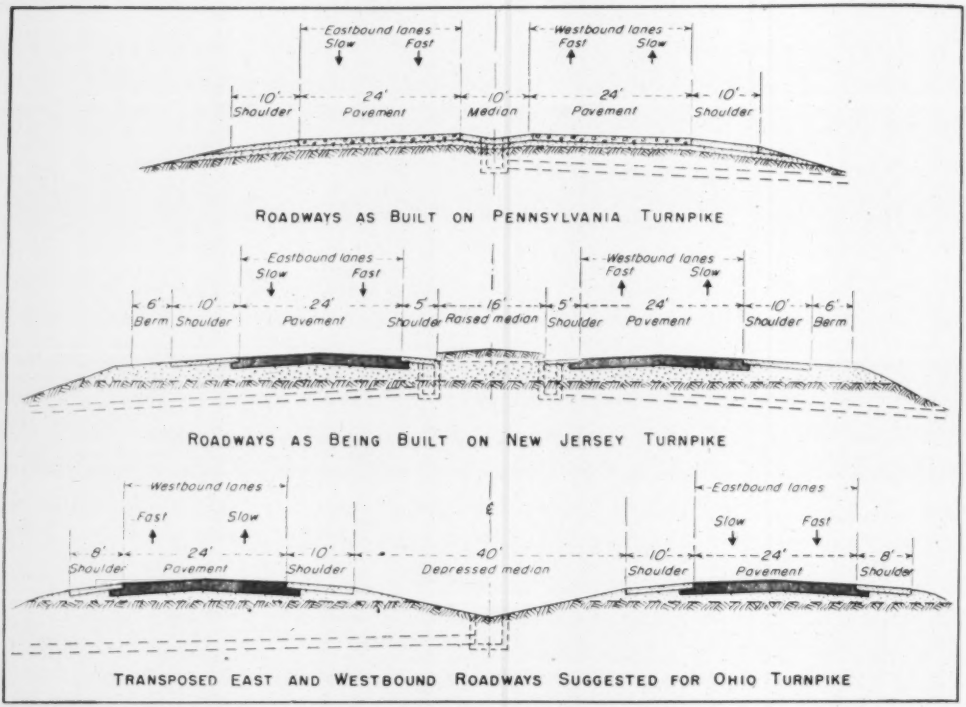

FIG. 1—PLACING THE WESTBOUND LANES to the south of the eastbound lanes has been proposed for the Ohio Turnpike as a safety measure. With a 40-ft median and 10-ft interior shoulders, the opposing fast lanes would be 84 ft apart. Opposing fast lanes are 10 ft apart on the Pennsylvania Turnpike and will be 26 ft apart on rural sections of the New Jersey Turnpike.

Transposed traffic lanes proposed for Ohio Turnpike

Consultants to Ohio Turnpike Commission recommend this change as a safety measure—other authorities doubt that the claimed advantages outweigh disadvantages

TRANSPOSING the eastbound and westbound traffic lanes on the projected Ohio Turnpike has been proposed as a safety measure by Herschel H. Allen of the J. E. Greiner Company, consulting engineers to the Ohio Turnpike Commission. This proposal was made in a report on the design of the turnpike that was submitted to the commission on July 3 (ENR July 12, p 27). It formalized earlier informal recommendations made by Mr. Allen.

Under the Greiner proposals, the eastbound lanes of the turnpike would lie to the north of the westbound lanes and would be separated from them by a 40-ft wide median zone and 10-ft wide paved shoulders—a total of 60 ft. The slow lanes in both directions would be along the median zone and the fast lanes would be on the outside. Thus the opposing high-speed lanes would be separated by a total distance of 84 ft instead of 10 ft as in the Pennsylvania Turnpike and 26 ft on the rural sections of the New Jersey Turnpike.

All gasoline and service stations, restaurants and maintenance shops would be located in the median zone where they could be reached from either the eastbound or westbound lanes without crossing the high-speed lanes, as would be necessary with centrally located service stations on divided highways as normally laid out. As an added safety factor, Mr. Allen proposes an outside paved shoulder 8 ft wide along the high-speed lane.

In addition to the greater safety that Mr. Allen believes to be inherent in his proposed layout, he holds that the design of interchanges with main highways crossing the turnpike would be simplified, thus resulting in certain economies. The median zone would be widened at such points.

Mr. Allen credits John J. Jenkins,

Jr., one of the partners in the Greiner firm, with having originated these proposals.

In presenting these proposed departures from traditional highway design practices to the recent Ohio Engineering Conference, Mr. Allen cited vehicles crossing the median zone on the Pennsylvania Turnpike as one of the principal causes of accidents on that highway. As part of the original basic design of that highway, he said, "It was intended that left-hand turns would be entirely eliminated, but since the median is only 10 ft wide and is not insurmountable by automobile wheels, it is crossed by unauthorized turns. Also, because of the constantly increasing volume of traffic, authorized crossings have been increased."

There also have been instances of vehicles being forced to cross the median strip to avoid a rear-end collision as a result of more than one vehicle pulling out to the left to pass a line of slower moving vehicles immediately ahead. Such crossing can be eliminated, Mr. Allen states, by the addition of a left-hand shoulder, regardless of whether the traffic-flow direction is orthodox or transposed.

Left-hand shoulders 5-ft wide are being built on the New Jersey Turnpike to meet this condition. For the Ohio Turnpike, Mr. Allen proposes 8-ft wide shoulders on the left side. He also recommends that the 40-ft wide median zone be sloped down to a drainage ditch four or more feet below the level of the adjacent pavements. This will trap vehicles out of control, Mr. Allen says, and will confine the damage to that vehicle and its driver.

From a maintenance standpoint, this depressed median will tend to lower the groundwater under the pavements and will facilitate the disposition of snow.

• **Elimination of left-turns**—A major advantage to be gained from the transposed lanes, according to the Greiner report, is elimination of both authorized and unauthorized U-turns to the left. Police and maintenance crews frequently need to make left-hand U-turns from or across one high-speed lane of a divided highway into the opposite lane in the performance of their regular duties. Motorists also do it where they have run by an exit lane or to reach a gas station or restaurant on the outside of the opposite lanes. Even when made with care, this maneuver is dangerous.

But when the eastbound lanes lie to the north of the westbound lanes, all such U-turns can be made to the right from one slow lane into the opposite slow lane.

• **Design of interchanges**—Mr. Allen states that transposing the traffic lanes simplifies the design of interchanges with highways crossing over or under the turnpike. In the layout proposed by his firm (Fig. 2), all interchange lanes are to be located in the median zone, which will be widened to about 750 ft for that purpose. Accelerating and decelerating lanes all come off of the interior lanes, which are the slow lanes in the transposed layout.

• **Service stations and restaurants**—Placing filling stations and restaurants in a widened median zone between the eastbound and westbound traffic lanes (Fig. 3), according to Mr. Allen, makes such facilities "accessible to both east and westbound patrons merely by building two deceleration lanes and two acceleration lanes off to the right of right-hand lanes on one-way highways. By such an arrangement, one building will serve twice as many customers and the arrangement can be made more flexible in so far as adjustment of building sizes and spacing along the turnpike are concerned."

"Furthermore, buildings located between the one-way highways and sufficiently near cross roads will be more efficiently serviced as far as delivery of supplies and accessibility for operating personnel are concerned than is the case where such additional accessibility by crossroad is not available. With the proposed arrangement, vehicles delivering supplies would be permitted to backtrack on the turnpike, although this service would be denied to turnpike patrons."

During hours when traffic is light, fewer operators would be required, and late at night a single operator at such a centrally located gas station could serve traffic in both directions, whereas a night operator is required at each station where stations are located on the outside, as on the Pennsylvania Turnpike.

• **Maintenance buildings**—Turnpike maintenance can be immeasurably improved, Mr. Allen states, by locating maintenance shops and equipment storage facilities between the oneway highways instead of on one side. "In the first place, this arrangement should completely eliminate any excuse for unauthorized pedestrians crossing the main travel way."

"This arrangement also will eliminate excuse for providing emergency crossings of the median strip, because legal and properly arranged crossings would be so spaced that intermediate and unauthorized crossings would be unnecessary in any emergency. And last, but perhaps not least, is the fact that left-hand turns would be completely eliminated since the reason for making such turns would no longer exist."

• **Little confusion anticipated**—Students of divided-highway design with

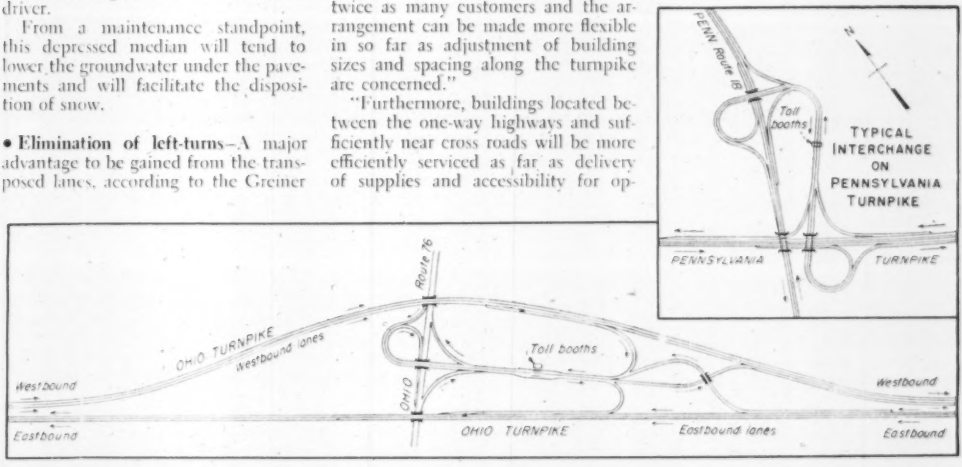

FIG. 2—AT INTERCHANGE POINTS with major intersecting highways it is proposed to place all interchange lanes of the Ohio Turnpike between the eastbound and westbound lanes. Shown at the right, to approximately the same scale, is the interchange layout used on the Pennsylvania Turnpike. A similar layout is being employed on the New Jersey Turnpike.

whom this proposed transposition of opposing travel lanes was discussed by editors of ENR note that it is not as radical a departure from normal practice as it would appear to be at first glance. Cars traveling on either pair of lanes, when passing overtaken vehicles would pass in the normal manner, and because of the 60-ft separation of opposing lanes, most authorities believe that there would be little of the confusion that would result from transposing the lanes on an undivided highway where opposing traffic lanes are side-by-side. One long-time student of divided-highway design does not believe that the seperation proposed by Mr. Allen will be sufficient to eliminate confusion.

• Interchange arrangement questioned—Most of the authorities consulted believe that the proposed transposition would result in confusion at the interchange points where any entering driver who is not familiar with the abnormal positioning of the opposing lanes could get the impression that he is heading into the eastbound lanes when his purpose is to go west, or vice versa. Also, one of the experts holds that the layout at the toll booth shown in Fig. 2 will be disturbing to many motorists. He observes that motorists will enter the booths with opposing traffic on their left but will leave the flyover to find the opposing traffic on their right. This, he states, will be disconcerting "whether the median is six or sixty feet wide."

No one of the authorities consulted sees any advantage in the interchange design proposed by Mr. Allen and his associates. For full elimination of left-hand turns across traffic, four bridges are required as against three for the type of interchange used on the Pennsylvania Turnpike and being built on the New Jersey Turnpike.

There is no difference in the total angle of turning required of drivers entering or leaving the turnpike, each layout requires only one toll booth, but the Ohio layout requires much more land. Also, being over a mile long, this layout might involve additional structures over local roads, streams or railroads.

On this question of interchange design, Mr. Allen points out that in his proposed layout neither interchange leg has to be carried over the turnpike, whereas on the Pennsylvania Turnpike (see Fig. 2) one leg requires a bridge spanning all four lanes. Also, the single bridge carrying the intersecting highway over the turnpike has to be long enough to span all four lanes and the median zone of the turnpike. Two shorter span bridges are required on the proposed Ohio layout.

Preliminary estimates, Mr. Allen adds, show that the structures will cost less on the Ohio layout.

• Widened median favored—All authorities agree that a wider median zone makes for greater safety because it reduces the possibility of vehicles from one lane crossing over into the opposing lanes. But all point out that wider medians can be used with normally placed east and westbound lanes. Transposition of opposing lanes, they concede, provides further separation of the fast lanes, but the value of that additional separation is questioned.

Engineers who worked on the designs for the New Jersey Turnpike believe that with the inner shoulders and raised median zone being built on that highway (Fig. 1) adequate protection will be provided, even on the north section of the highway where the median width is to be reduced to 20 ft. Shrubs on this raised median, as is proposed in New Jersey, are expected to be an added safety factor.

Engineers familiar with the early studies for the Pennsylvania Turnpike state that wide median zones were considered in that planning but were abandoned due to the great cost of providing them in the rugged country through which that road was built.

One engineer observes that should an accident result in the blocking of both lanes, either eastbound or westbound, on a highway with transposed lanes, it would be very difficult to keep traffic flowing by the expedient of single-tracking the remaining two lanes between points where the median can be crossed because the opposing lines of cars would be "passing on the wrong side" on the same pavement.

• Central service stations—Most authorities state that centrally located gasoline stations were studied in the preliminary planning for other divided highways but were abandoned for various reasons. Foremost among those reasons was the fact that vehicles entering or leaving such service stations must cross, enter or leave a fast lane. These engineers concede that the transposition of traffic lanes proposed by the Greiner organization would eliminate that traffic hazard, but as they do not favor a central location for service stations or restaurants because of other considerations, they do not favor transposition on that score.

The only advantage that these engineers concede to a centrally located gas station is the lesser number of operators required on the "graveyard shift."

On a highway with the traffic density of the Pennsylvania Turnpike or the anticipated density on the New Jersey Turnpike, the volume of traffic in either the east or westbound lanes during most of each day is sufficient to support a gasoline station at fairly frequent spacing. Consequently, no need is seen for putting gas stations in the median zone. One so located probably would need as many pumps and attendants as would be required for two stations, with resulting delays and confusion.

Where a restaurant is to be provided in connection with the service station, large parking areas are re-

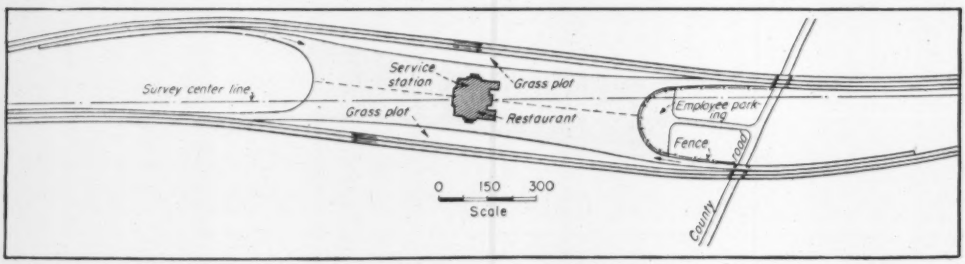

FIG. 3—SERVICE STATIONS, restaurants and maintenance shops would all be placed between the eastbound and westbound lanes, which would be more widely separated at those points than normal. In that location, one gas station would be able to serve all four lanes without requiring the crossing of high-speed lanes to enter or leave the station.

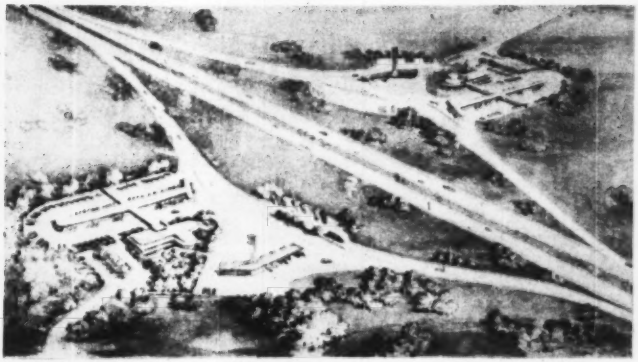

FIG. 4—PROJECTED SERVICE STATION and restaurant for the New Jersey Turnpike, where all such services are to be located on the outside of the main traffic lanes to allow ample area for expansion and to have the service facilities well removed from the traveled lanes.

quired. If located between the traffic lanes, the amount of land required for many years ahead must be determined initially and the land must be acquired if costly moving of lanes at some future date is to be avoided.

Also, engineers who participated in the New Jersey Turnpike studies point out that to provide as much land around the restaurant and gas station as their studies indicate will be needed would require that the widening of the central zone begin a long distance away from the station in both directions. In the country through which that highway is being built, such widening would be costly and generally would involve additional expense in road and stream crossings.

These engineers note also that providing an adequate area of land between the opposing lanes for service facilities might result in alignment being made secondary to services. An outside location for facilities, on the other hand, can be expanded without any change in location of the lanes.

Nor can these engineers see that a central location has any special advantage from the viewpoint of accessibility to operating personnel or for delivery of supplies. A cross highway, they state, appears to be essential to the central location proposed for Ohio. Such a highway would be equally useful for access to marginal service stations, but they point out that a cross highway close to a marginal station is not essential to such a layout. Supplies can be delivered to the restaurant from local side roads and employees can enter and leave by the same route.

• **Maintenance stations**—Major disagreement with Mr. Allen's proposals is centered on his claim that maintenance will be "immeasurably improved" by placing maintenance yards inside the median zone. It is pointed out that the Public Roads Administration and many highway departments will not approve of maintenance buildings or yards being located where they can only be reached by crossing or traveling along a main highway. They must be so located that materials to be stockpiled can be delivered without entering the main highway. And here again, these engineers state, a marginal location provides much more flexibility in layout and puts no limit on future expansion.

Notes on legal decisions

Summaries of decisions relating to construction work prepared by I. Vernon Werbin, counselor at law and engineer, New York, author of Legal Phases of Construction Contracts (McGraw-Hill Book Co.)

Stopping work under contract

A contract was entered into for the demolition of a building, under which the contractor was to be paid $3,500 for performance of the work in question, and in addition was to retain possession of all salvaged materials. Some of this material was scarce and difficult to obtain, and it was understood by the owner that the contractor planned to use some of the salvaged material in another building.

In spite of the fact that the owner of the building to be demolished had instructed the contractor not to proceed with the work, the contractor proceeded with the work of demolishing the building, and upon the completion of the work, upon the refusal of the owner to pay the contract price, brought an action to recover the same. The court allowed the contractor a recovery for the full amount of the contract price.[1]

The court, after reviewing the facts involved in this case, pointed out that the failure to proceed with the demolition work would deprive the contractor of scarce materials that he had planned to use on another construction job and that the failure to receive such materials would delay the performance of the other job for about five months. "Thus it is obvious that an essential element of the rule giving one party the power to stop performance by giving notice not to perform is lacking here since plaintiffs [contractors] were not interested solely in the profit to be derived from tearing down the old building and selling the salvage, but they had an additional interest in obtaining actual performance of the agreement so that they could secure scarce materials."

"It has been held that in cases where damages will not afford adequate compensation . . . . the plaintiff may continue to perform, in spite of a notice to stop, and thereafter recover on the basis of continued performance. [Citing cases.]"

(1) Bomberger v McKelvey, 229 P. 2d 729, Supreme Court of California, July 31, 1950.

Changes in plans

In a recent case,[1] the court held that in building and construction contracts, it is implied that the building shall be erected in a good and workmanlike manner. A contractor or builder does not impliedly warrant that he has the engineering knowledge or skill of an architect and ordinarily he is not liable for consequences of changes in the plans and specifications made with the full knowledge and consent of the owner. However, in some cases, the consequences of the changes may be so obvious or so well known by persons engaged in the contracting and building trades that they are charged with knowledge of them, in which event it is their duty to disclose them to the owner.

(1) Mann v Clowser, 59 S.E.2d 78, (Supreme Court of Appeals of Virginia, May 1, 1950.)

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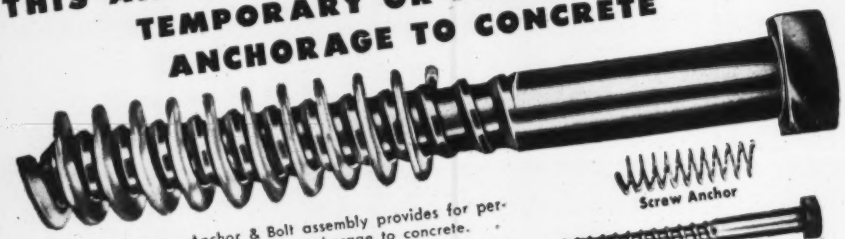
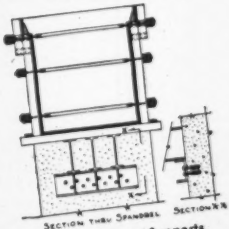


The Richmond Screw Anchor & Bolt assembly provides for permanent or temporary, cast-in-place anchorage to concrete.

The Screw Anchor unit embedded in concrete distributes the load from the coarse threaded anchor bolt which is removable and reusable as required.

Use for permanent anchorage provides full bolt strength for securing fixtures to concrete such as cleats and fender systems for docks, column bases for steel structures, seat brackets for stadiums, etc.

Use for temporary installations includes tunnel form anchorage to previously poured inverts; anchorage of cantilever lift forms in dam construction; pile lifting with Anchor Eye Bolts; and anchorage of bracket supports for overhead form structures to eliminate costly shoring and bracing.



Spandrel Beam Supports
A few Anchors and Bolts to support heavy spandrel beam forms to concrete piers replace expensive high level shoring.

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RICHMOND KNOW-HOW—DEPENDABILITY—SERVICE—ESTIMATES & JOB PLANNING

Marshalling men and methods for half billion dollar atom plant

How contractor set up engineering and services

(Second of three articles)

J. Roland Carr
Associate Editor

ENGINEERING IS PLAYING an important role in the early stages of F. H. McGraw & Company's work on the new U-235 plant near Paducah the construction organization for which was described in last week's issue p. 28. Operational requirements of the completed facilities demand precision plant layout while the huge size of the project necessitates the development of design and detail plans as construction proceeds. Because of its size also, the job's industrial relations, purchasing and accounting setups are quite out of the ordinary.

Currently the company's engineering department is made up of 110 field engineers plus 150 office engineers and clerical help. At peak operations 200 field engineers will be needed and 450 in the office. Civil, electrical and mechanical engineers of all grades are being recruited in several parts of the country, San Francisco now offering the best market.

• **Salaries are good**—Salaries offered by the McGraw Co. include $7,000 to $10,000 per year for departmental chief engineers; $7,000 to $9,000 for assistant chiefs; and $4,160 to $8,320 for technical men ranging in grade from junior engineers to designers and field party chiefs.

The engineering department, as shown in the accompanying chart, is divided into three divisions, headed by two assistant project engineers and one division engineer; all reporting to a project engineer. The division engineer supervises five departments; civil, mechanical, electrical, structural, and piping. Each is headed by a chief engineer and an assistant engineer, and all are being staffed with designers, detailers, estimators, junior engineers and engineering aids.

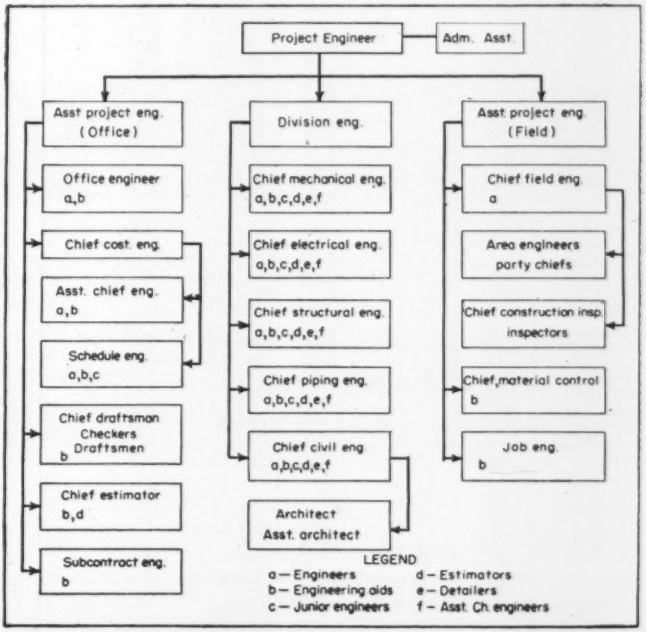
One assistant project engineer heads up the office which handles estimates, costs, subcontracts, and specifications. The other assistant project engineer heads up the field work. Directly under him are a job engineer, chief of material control, and the chief field engineer.

• **Area Engineers**—The job covers such a large area and involves such a wide range of surveying as to require the establishment of area engineers. Party chiefs report to the area engineers who, in return, report to the chief field engineer and his assistant. Construction inspection is supervised by a chief inspector, reporting directly to the assistant chief field engineer.

There is a well defined line of demarcation between the company's engineering operation and those of one of the architect-engineer firms working under a contract with AEC for some of the design and field inspection of construction work now in progress.

The architect-engineers furnish architect plans and design drawings. McGraw's engineers prepare the detail shop plans and sub-assembly drawings. They also design and detail certain temporary facilities.

In getting the job under way early this year, the architect-engineer firm established north-south and east-west base lines, and set elevation monuments. McGraw's field engineers took over from there and are completing the survey work for building-lines and equipment installation—all subject to



SUPERVISORY RESPONSIBILITY in the contractor's engineering department at Paducah is divided among a field, an office and a division engineer. At peak operations 200 field engineers will be needed, plus 450 in the field office.

the inspection of the architect-engineer firm's engineers.

• **Operation Mud Hen**—The construction site is in a low-lying flat area involving quite a drainage problem during wet weather. This, the vanguard of surveyors discovered last spring when they moved in on the job.

Terming the maneuver, "Operation Mud Hen," they had to move their temporary office building and surveying equipment in on tractor-drawn mud-boats; temporary service roads were incapable of supporting pneumatic tired vehicles. Then, when the frost finally went out of the ground, they discovered that several control monuments and benchmarks had been thrown out of true line and elevation, necessitating rechecking and resetting.

Special precautions are necessary in establishing control points for some of the structures to be built to precise line and grade. A typical example is the second largest process building for which column footings are now being poured.

• **Grid system of bench marks**—A complete set of permanent monuments and bench marks was established at 100 ft intervals surrounding this building, which will cover more than 12 acres. Two-color targets, mounted on sturdy timber frames, were placed about 15 ft above and slightly behind each monument.

While the first cost of establishing this network of surveying controls—to be duplicated on other structures throughout the project—is expensive, it will pay dividends in speeding construction and insuring its accuracy. In establishing column and building lines no tape measurements over 50 ft long will have to be made.

• **Industrial relations**—As would be expected on such a large project, McGraw's industrial relations division is a beehive of activity. Right now, one of its major headaches is recruitment of both skilled and unskilled labor.

Headed by a director, and one assistant, the industrial relations division is set up to operate in four major branches, each in charge of a manager. They are: plant protection, personnel, labor relations, and personnel services. In addition there is a casualty and safety company's safety engineer who supervises a first aid staff as well as the investigation and adjustment of workmen's disability claims.

Plant protection includes a fire department, security education and control, and the company's staff of safety engineers. The personnel branch handles all recruitment of personnel below the supervisory level—which extends down to and includes foremen—and contains a large staff that interviews job applicants.

McGRAW'S ENGINEERING CHIEFS

L. H. Harmon, project engineer
E. J. Billings, asst. proj. eng. (field)
P. J. Glassen, division engineer (acting)

Chief Engineers:

W. G. Keat, civil
G. K. Ahlers, structural
R. J. Croy, electrical
P. J. Glassen, mechanical
G. D. Robinson, piping
R. C. Oppel, field
L. H. Cornish, material control
R. Cannon, costs
H. J. Corwin, office engineer
H. H. Racker, chief estimator

As its name implies, the labor relations branch, has the responsibility of promoting and maintaining good labor relations. This is of vital concern to top management in view of the relatively short period scheduled for completion of the work.

The manager of personnel services has his hands full with housing, office service, recreation, transportation, supervision of the company's intra-plant car pool and cafeteria.

• **Purchasing department**—The purchasing department has bought $30,000,000 worth of construction materials and equipment to date and has an undisclosed amount on order. Early placement of orders for equipment and materials is recognized as a critical necessity. Failure to secure sufficient equipment or to insure the orderly arrival of materials could seriously wreck construction schedules.

Sealed bids, which are publicly opened, are taken on purchases exceeding $100,000. Below that amount competitors' quotations are received, with sharp competition among vendors extending even to orders involving not more than $100. Certain critical items are obtained on a negotiated basis. AEC approval is required on orders exceeding $50,000.

It isn't a hard and fast rule that the low bid must always be accepted. Specific design requirements, urgency of securing the material and delivery date of the vendor may influence the placement of an order.

Currently the purchasing department's payroll totals 65. It is headed by a director of purchasing, a purchasing agent and two assistants, a chief expediter, a priority supervisor, and an AEC liaison coordinator. There are 20 buyers—all stationed in the project office at Paducah—and 10 expediters, three of whom are stationed in New York, Chicago and Pittsburgh.

• **Accounting department**—Keeping the multitudinous records of payroll and purchases on $330 million of construction will be a big job. Currently, the accounting force totals 220. At its peak it will reach 400, divided roughly as follows: accounting, 100; timekeeping, 100; warehousing, 125; and IBM operations, 75.

The weekly payroll—now running about $400,000 and estimated to build up to a peak of $1,500,000 by November—closes on Sunday with paychecks distributed the following Wednesday. When construction gets under full swing, there will be 85 clock-alleys in operation to handle the time cards.

The nucleus of the accounting department, like the other key operations of the job, was recruited from other McGraw jobs. Its organizational structure is headed by a project comptroller, together with two assistants.

There are five department chiefs in charge of materials, internal audits, accounts, time keeping, and IBM. The chief accountant's department has seven branches. They are: office manager, office supplies, equipment, costs, accounts payable, general ledger account, and general accounting.

During the next six months, the company will conduct a training school in Louisville, Ky. for new, inexperienced employees in the accounting department. Also a welding school at the job site. No job training is planned for other craftsmen. Trainees will receive full time wages while taking the training courses.

(The third, and last article, to be published next week covers the organizations of the five firms handling the designing for the Paducah atom plant).

Trans-Canada highway progresses slowly

Work on the proposed 5,000-mile, $300-million Trans-Canada paved highway is proceeding slowly, despite all the claims of defense construction in Canada, according to a statement made to the Canadian House of Commons by Resources Minister Winters.

Between December 10, 1949, and March 31, 1951, contracts were awarded for 572 miles of grading and 190 miles of paving. All provinces except Quebec and Nova Scotia have now concluded agreements with the Dominion Government for sharing equally cost of the Highway in their jurisdictions. These agreements cover a total length of 4,270 miles.

Payments so far made to the provinces by the federal government amount to $7,204,884, out of a total committment to date of $12,275,504.

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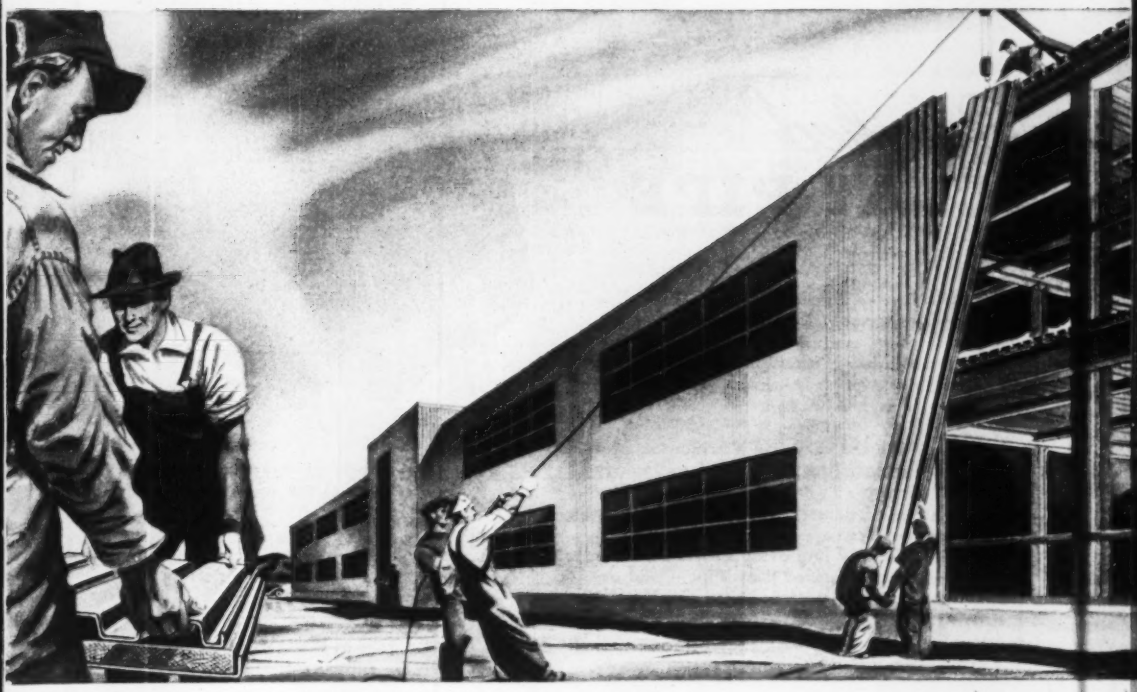

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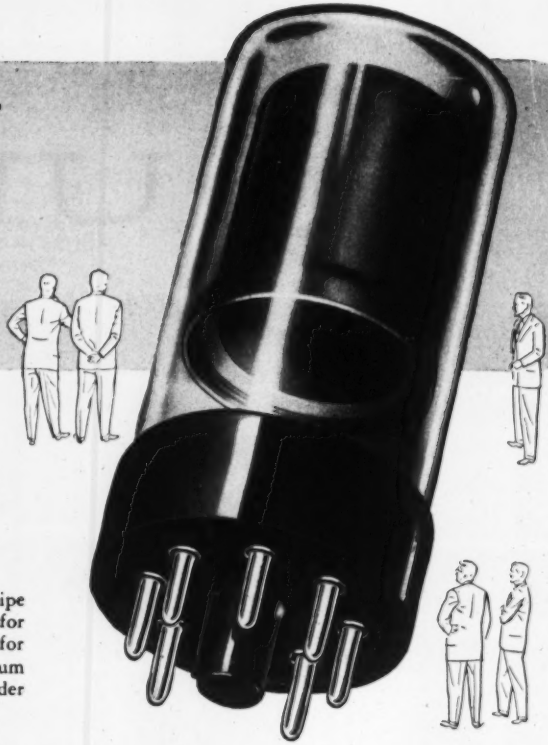

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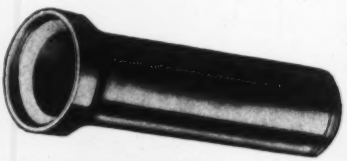

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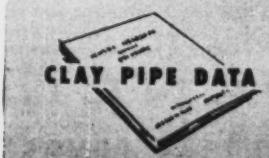

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PILE CAPS TRACE OUTLINES of amphitheatre (left) and stage (right) for Marine Stadium at famed Jones Beach. Sand fill to right of amphitheatre will be removed later. Dotted lines show location of tunnel for access to stage. (Fairchild photo)

Sand fill makes marine stadium a dry-land job

REGULATION M-4 hadn't been dreamed of in 1949 when work began on the Marine Stadium at Jones Beach.

War and mobilization restrictions were no problems at all, but the stadium's builder, the Long Island State Park Commission, was hard-pressed by a most timely obligation: to provide enough public recreational works to support the great postwar surge of new population on Long Island.

As the commission's largest and most popular facility, Jones Beach State Park needed expansion most. Requirements included more buildings, roadways and parking lots, as well as additional beach-bathing development. But the most significant item from a construction standpoint was the stadium.

Scheduled for completion next spring, this stadium will replace an 8,000-seat timber structure that was built in WPA days and razed a few years ago.

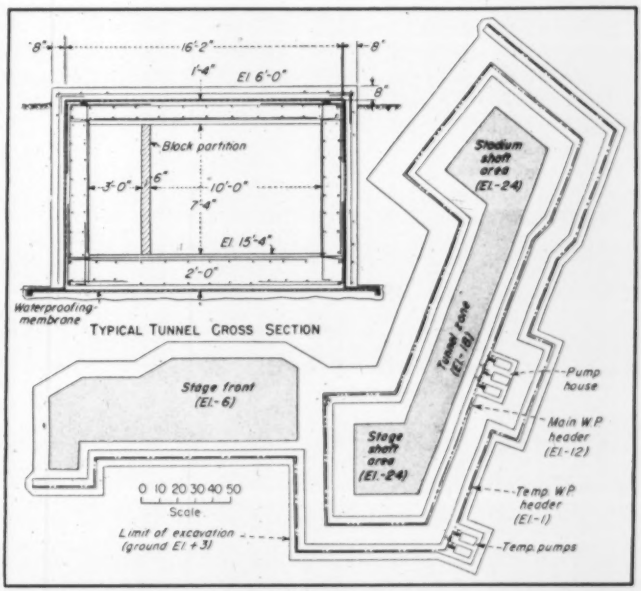
Construction site is Zach's Bay, a tidal body on the inshore side of Jones Beach's long sand island. Foundation work began in December, 1949. It was substantially complete the following October, in time for superstructure work to begin on schedule. Concrete will be topped out this summer and the whole job will be ready for operation next spring (barring materials complications). At present, construction is on schedule.

• **Stadium description**—The two principal elements are an 8,200-seat reinforced concrete amphitheatre on shore and a semi-circular stage 100 ft offshore. An underwater tunnel connects the two. Seating is built on arcs almost 90 deg long, with radii (from a point near the stage center) of 175 ft and 316 ft to front and back, respectively. Stage front is 200 ft.

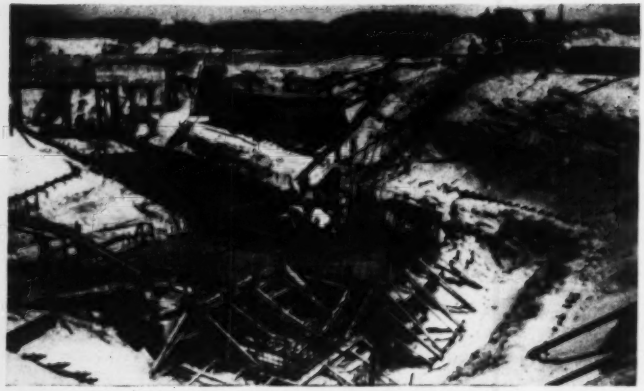
The tunnel runs 185 ft from a shaft at the stage's right-hand corner to another shaft at the corresponding stadium end-wall. Inside sectional dimensions are 13 ft 6 in. wide by 7 ft 4 in. A 6-in. block wall separates the footway from a 3-ft-wide utilities chase.

The tunnel is waterproof and heavier than the water it displaces. Construction details, including the method of waterproofing, are shown on the drawing. Due to its weight, the structure has a negative buoyancy of about 300 lb per ft (shafts, however, depend partly on super-structure weight to overcome buoyancy).

Built between an inner and outer layer of concrete, waterproofing is five-ply impregnated cotton fabric and mastic. Roof and wall waterproofing is keyed to similar membrane laid on



TUNNEL WAS TOUGHEST part of substructure contract (note cross-section, upper left). In sand fill and original bay bottom, wellpoints kept excavation dry. Sand stood at 1-on-1 slope; headers rested on 5-ft berms. (Foundation Equipment Corp.)



FOUNDATION PAD for tunnel shaft at stage rests on sand 24 ft below low water. Wellpoint pumphouse contains three 8-in. pumps, the middle one valved to substitute for either of the flanking ones. (ENR photo)

top of a thin concrete working platform, which rests on the excavation.

• **Cofferdam was anticipated**—In the original design, this working platform also was to serve as a seal for a sheet-pile cofferdam that was to enclose all subaqueous offshore work (tunnel and parts of the stage). Water depth was 15 to 20 feet.

Lenart Constructors, Inc., who had the $740,000 substructure job, decided that it would be easier to work in a sand fill, keeping the excavation dry with wellpoints.

Upon approval by the park commission, Lenart had a 10-in. dredge pump 62,000 cu yd of sand from nearby bay-bottom, to create a temporary working area extending about 600 ft offshore. He brought the area to El. +3 and bulldozed a marginal dike to +5. Excavation in this and underlying material was 20,000 cu yd.

The wellpoint layout is shown in the second drawing. Initial excavation, to a maximum depth of −12, was protected by temporary wellpoints taking off a header at −1. A permanent system was installed with headers at −12 and the upper system was taken out of service. Outshore from the pumphouse there were 124 25-ft points. Inshore there were 150 points varying in length from 14 ft to 21 ft, the majority being 17-footers. Length variations enabled the system to intercept water both above and below an impervious layer.

Excavation went to −24 in the two shaft areas and to −18 in the tunnel zone (−6 in the stage-front area). When bottom was ready, the working platform was laid and construction proceeded in the dry.

Elsewhere in the project, foundations are capped pile clusters. In all, there are 1,200 cast-in-place concrete piles. Average length is 22 ft. Here, too, the pumped-sand platform was useful because it allowed the contractor to use a land piledriving rig for stage foundations.

Although foundation work has been complete for several months, the contractor has one operation to perform —removal of sand from the zone between the stage and stadium, as well as underneath backstage. Fill was left in place for the convenience of the superstructure contractor.

Superintendent for Lenart was Eugene Gibbons. Architect-engineer for the owner is Skidmore, Owings & Merrill, of New York, represented on the job by L. B. Roberts. Robert Moses is president, A. E. Howland is general manager, and Sidney M. Shapiro is chief engineer of the Long Island State Park Commission.

Successful concreting follows sequence plan

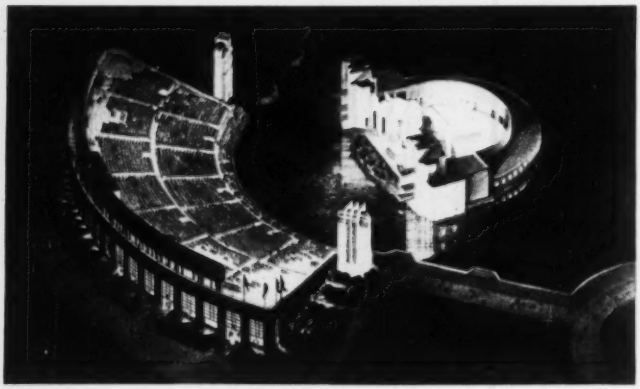
When it came to building the Zach's bay marine stadium superstructure, contractors and engineers alike had real coordinating jobs to do.

Structural contractor, Grove, Shepherd, Wilson and Kruge (New York), had to plan a series of concreting steps that would permit continuous transfer of new concrete loads to previously set elements. (In a building this objective is reached simply, but in a stadium it can involve some fancy dovetailing of column, deck, seat and stairway operations.)

He also had to work closely with the mechanical prime contractors. This is a normal problem on public works in New York State because the law requires separate contracts. But the relative size of one mechanical contract—that for electrical work—made inter-contractor coordination unusually important.

Effective theatre anywhere takes a lot of lighting. The lighting contract —amounting to $1,100,000—is almost as big as the $1,800,000 general contract.

Final responsibility for the job's unusually complex coordination falls on the engineer, of course. According to Mr. Roberts, cooperation has been excellent, few delays having been



COMPLETED STADIUM will seat 8,200. Lighting contract is about a fourth of the whole job.

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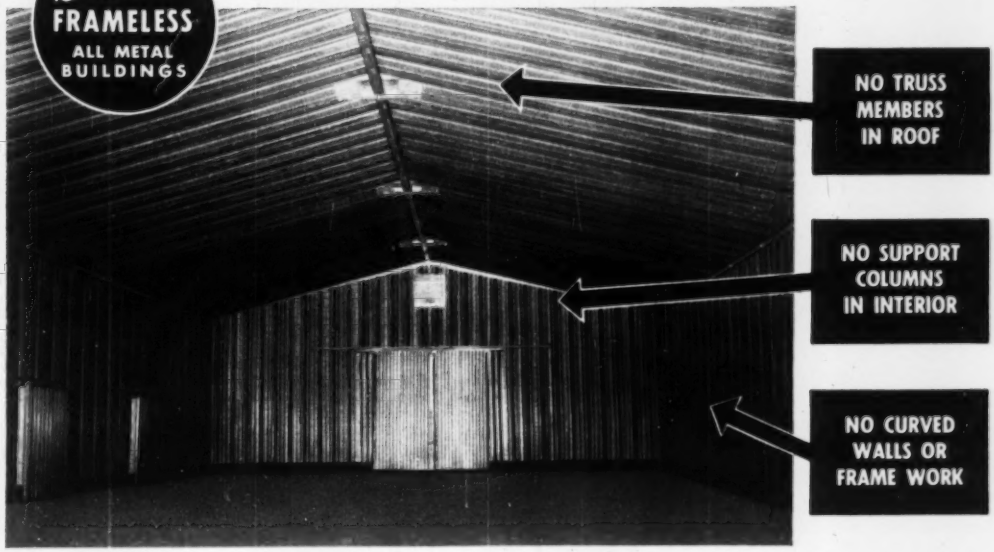

Behlen Frameless Building at Alfalfa Dehydrating Plant. Above: Interior View.

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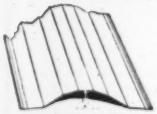

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Feed Milling Company Finds Monocoque Construction Best for Utility Building

Nebraska Feed Products Company needed a utility building at its dehydrating plant near Valley, Nebraska.

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STAGE UNIT will be surrounded by water. Curved concrete surfaces have constant radius, so this part of work enabled several form re-uses. (Long Island State Park Commission)

caused by one contractor having to wait for another.

No doubt this good coordination stems in part from the general contractor's sequence plan for concreting.

Once the sequence begins in one of the stadium's seven segments, it is possible to predict when each new concrete pour will take place. Hence it is possible for the mechanical contractor to know a whole series of deadlines for various work elements—extending over a period of ten to twelve weeks. Scheduling reinforcing steel deliveries also is aided by the system.

• **Job components**—The stadium is divided by its aisles into the seven segments. Segments are sectionalized by two horizontal walks, the lower walk served by three vomitories at the center of alternate segments, and the upper one served by four vomitories in the remaining segments. Along the back of the stadium is a promenade, between the outer two rows of columns. Space stageward from the promenade (as far as the lower walk) is enclosed by a vertical wall on the second column row. This space has three floor levels—ground, mezzanine (El. +15 ft. 7 in.) and upper deck. (El. +25). In addition there is a deck that is the promenade ceiling (El. 41 ft. 5 in.).

Here is the ten-step concreting sequence within a segment:

1. Ground floor slab.
2. Columns and walls up to 15 ft 7 in.
3. Mezzanine deck and promenade columns to +25.
4. Promenade wall to +25.
5. Lower seating (to +25) and upper deck. (Vomitory stairs go in during steps 5-7.)
6. Promenade wall and columns to +40 (wingwalls, lower vomitory).
7. Promenade ceiling and vomitory roof.
8. Back wall above +40.
9. Upper seating, including supporting columns.
10. Parapet (wingwalls upper vomitory).

With one exception, this procedure allows the contractor to use relatively short shores to support seats and slabs. The exception is the promenade ceiling, which has to be shored all the way up from the ground—about 35 ft.

• **Form materials**—The segmental approach also makes for repeat-uses of forms. Because there are seven segments, the contractor deemed seven uses a desirable average service factor.

Most concrete faces remain exposed, so form-surfaces have to give concrete a smooth appearance. The finish that was selected to give at least five (sometimes as many as ten) smooth-concrete uses is a tough nitrocellulose material that was painted in two coats on $\frac{5}{8}$-in. exterior grade plywood. The coating lasts throughout the job. However, for each use a paraffine-based form oil is applied, then rubbed with cotton waste.

All forms for the job were detailed in advance. They are fabricated at a job carpenter shop. Exposed plywood edges are sealed against moisture.

As the job is working out, 50,000 sq ft of form material will care for 250,000 sq ft of form contact area. Non-repeat forms, particularly in the stage unit, lower the overall use-factor from the seven attained for the stadium's main structure.

• **Concreting practice**—A useful device for form erection is a patented stadium-seat tie, which is illustrated. When forms are erected, transit-mixed concrete placement proceeds with the aid of crane and bucket. Yardage for the whole job is 8,000.

Stripping of all structural elements is controlled by the breaking of a sample cylinder at 7 days. If 75% of the designed 3,000 psi compressive strength is attained, stripping proceeds.

The contractor says he is in no hurry to strip in most cases. Because concrete is to be left exposed, for its architectural effect, he prefers to give the concrete time to shrink away from surfaces. This way there is no local adhesion at critical points like corners, with resulting minor damage to appearance.

Fast stripping is desirable, however, in the case of the promenade ceiling. This ceiling is not strong enough by itself to carry upper-seat forms, so time must be taken to re-shore it after it is stripped. Here, the contractor uses high-early-strength cement, which enables him to strip in three days.

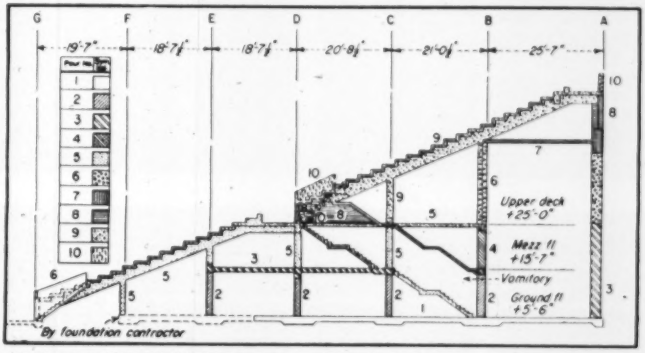
Much of the concreting took place in winter. Heating aggregates and water at the batching plant yielded 60 deg F concrete at the time of placement. Concrete temperature would fall to the low 40's at limiting placement temperatures (28 deg F when temperature is rising; 34 deg F when temperature is falling). Concreting was completely enclosed with tarpaulins, the enclosure being kept at 70 deg F for 72 hours, with heat from oil salamanders.

A feature of concrete work is the expansion joint material. It consists of loose-stranded 1-in. jute rope that is impregnated on the job with a mixture of liquid rubber and a setting powder. The setting powder effects "vulcanizing" without heat. The resultant rubberized rope is caulked into expansion-joint spaces. It is said to be non-extruding and resistant to acids and alkalies.

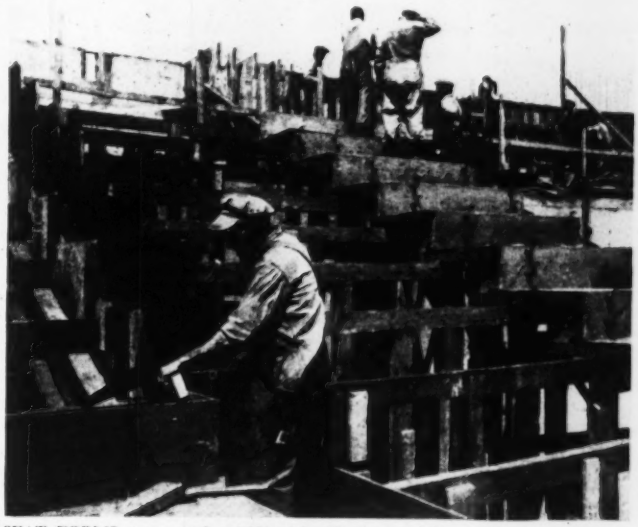
One special concrete surface treatment caught the reporter's eye. It is a rough-concrete ceiling (to furnish grounds for a plastic adhesive acoustical material). Roughness was obtained with the aid of a sugar-base set-retarding compound painted on the ceiling form. The compound penetrated about ¼ in. of the cement paste. When forms were stripped, the unset paste was wire-brushed away, exposing coarse aggregates and the deeper, already set material. (For a similar technique applied to a Florida office building for another purpose see ENR June 7, p 28.)

Superintendents for Grove, Shepherd, Wilson & Kruge have been Kenneth Morris and R. J. Tighe. Other principal contractors include: T. Frederick Jackson, New York (electrical); R. T. Fry, Flushing, New York (plumbing); J. H. Martin, New York (heating), and Seaborg Elevator Co., Brooklyn.

AMPHITHEATRE UNIT has seven segments, allowing repeat forming. Operational sequence within a segment had to be worked out carefully. (Fairchild)



CONCRETING SEQUENCE, as planned by the contractor. Modifications of this plan applied to sections with lower vomitories, and to sections with end walls.



SEAT FORMS are erected quickly with aid of special frame ties. Shores rest on concrete of the previous stage in construction sequence. (ENR)

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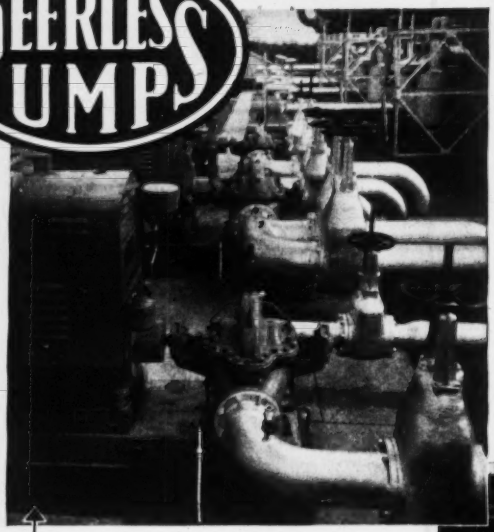

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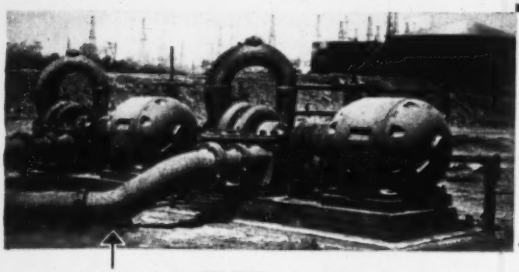

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READER COMMENT

Glass fiber being studied

Sir: In ENR June 28, p 44, H. S. Meissner questioned the practicability of my suggestion for the use of glass fiber for prestressing concrete. His criticism is based upon the fact that glass fibers might be attacked by free alkalies in concrete.

The possibility of some such action as Mr. Meissner anticipates is well recognized. Any research into the practicability of using glass fibers for reinforcing concrete should investigate throughly the chemical, as well as the mechanical stability, of the materials used. The most promising glass-fiber reinforcing material thus far considered consists of parallel fibers embedded in a plastic. Here again, however, the question of the chemical stability of the plastic over prolonged exposure to concrete must be considered.

At present, I am at Princeton directing the early phases of a program of research into the practicability of using glass-fiber tension members for prestressed concrete. Let me assure Mr. Meissner and other interested engineers that the chemical, as well as the mechanical, phases of the problem will be given consideration.

IVAN A. RUBINSKY
School of Engineering
Princeton University
Princeton, N. J.

Bonded wires vs unbonded

Sir: L. Coff indicates that I have favored "single wires bonded or unbonded" (ENR May 24, p 47). I have never advocated unbonded wires, whether they are single or in stranded galvanized cables. But I have said that bonded wires are by far preferable.

Mr. Coff ignores entirely my point that for unbonded wires the elastic limit governs failure, whereas with bonded wires the tensile strength determines the ultimate resistance of the construction, provided it is underreinforced. Thus, any cables that allow formation of an efficient bond; e.g., the Magnel cable, is by far preferable to an unbonded cable. A fair comparison of costs should take into account that for unbonded cables 1½ times the steel amount would be required to ensure the same factor of safety.

Mr. Coff says "that the price per pound of 0.2-in. wire, in place, amounts to five to six times the price of reinforcing steel." This may be the case if the design and the method of prestressing is not adjusted to American conditions, with high labor costs. It is particularly true if the high initial costs due to the introduction of a new method are take ninto account. However, based on a study I made in the U. S. last year, tensioned wires could be placed for four times the price of ordinary reinforcing steel, or less. The wires would be tensioned in pairs and placed in grooves and simple anchorages—temporary or permanent—provided.

It is not necessary to employ the more expensive wire with increased proof strength if bond is ensured, as I mentioned in my article (ENR April 12 p 42). This also greatly influences the economy. Thus, 100 lb of ordinary reinforcing steel may be replaced by 17 lb of bonded wire with a strength of about 224,000 psi, or by 25 lb of unbonded cables with an elastic limit of about 155,000 psi. Assuming the cost of tensioned wires in place to be as high as four times the price of ordinary reinforcing steel, the cost with bonded wire would be reduced to a maximum of 68% of that of ordinary construction, while with unbonded stranded cables the price may be assessed as at least 75%, assuming the cost per lb to be as low as three times that of ordinary reinforcing steel. It is thus seen that Mr. Coff is not right in saying "the object of prestressing, i.e. economy" would be "defeated" by using a better and more efficient construction.

It must be pointed out that saving steel is not the only advantage of prestressing. Concrete, formwork and weight also are reduced and resistance to fatigue is considerably increased (improved fatigue resistance, however, does not apply to unbonded steel). Prestressed concrete, furthermore, has a greater resilience, allowing a high degree of serviceability not obtainable with ordinary reinforced concrete.

Cost of prestressed steel can be further reduced if only a part is tensioned and the other part is placed as untensioned cable or pairs of twin-twisted wires, which can be prefabricated to exact length and need only be put into the forms before concrete is placed.

Finally, I may say that the solution advocated by Mr. Coff, when provided with a higher factor of safety against cracking, as suggested by him, becomes a rather rigid structure with little flexibility, thus hardly resistance to blast.

P. W. ABELES
Consulting Engineer
London, England

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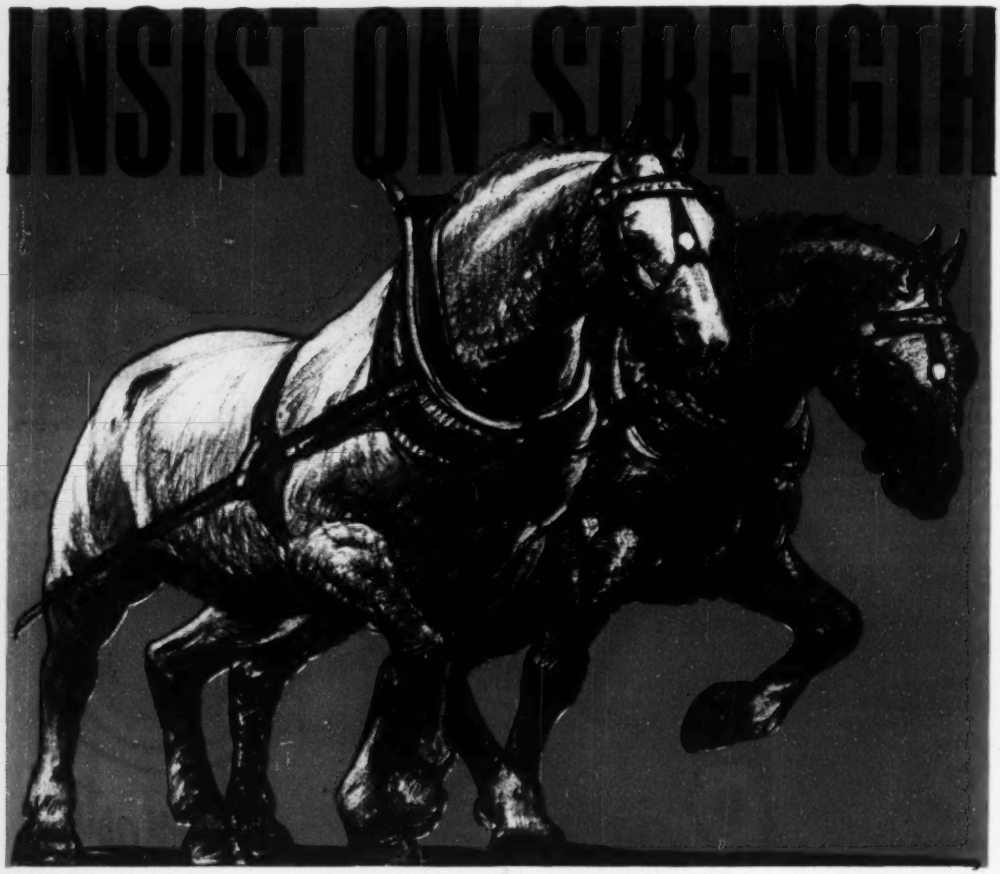

Like a Percheron draft horse cast iron pipe is known for strength

Long life and low maintenance cost of mains laid under city streets depend not only on effective resistance to corrosion but on definite strength factors. The four strength factors that pipe must have to withstand beam stress, external loads, traffic shocks and severe working pressures, are listed on the page opposite. No pipe that is deficient in any of these strength factors should ever be laid in paved streets of cities, towns or villages. Cast iron water and gas mains, laid over a century ago, are serving in the streets of more than 30 cities in the United States and Canada. Such service records prove that cast iron pipe not only resists corrosion but combines all the strength factors of long life with ample margins of safety.

CAST IRON PIPE

in pipe for city streets

No pipe that is deficient in any of the following strength factors should ever be laid under paved streets.

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The ability of cast iron pipe to withstand external loads imposed by heavy fill and unusual traffic loads is proved by the Ring Compression Test. Standard 6-inch cast iron pipe withstands a crushing weight of more than 14,000 lbs. per foot.

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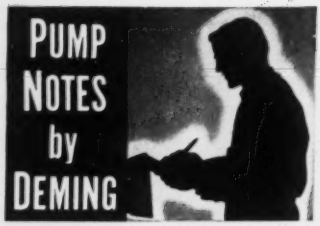
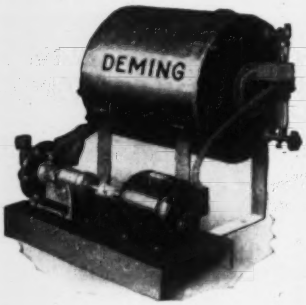


PUMPING CONDENSATE



● Selection of the most efficient condensation return unit for each specific requirement is simplified by reference to Deming Bulletin No. CR-1-B (Copy on request.)

The unit illustrated is one of an extensive line of Deming Condensation Return Units equipped with standard Deming centrifugal pumps, centrifugal jet jumps, "Turbo-Flo" pumps, and reciprocating pumps.

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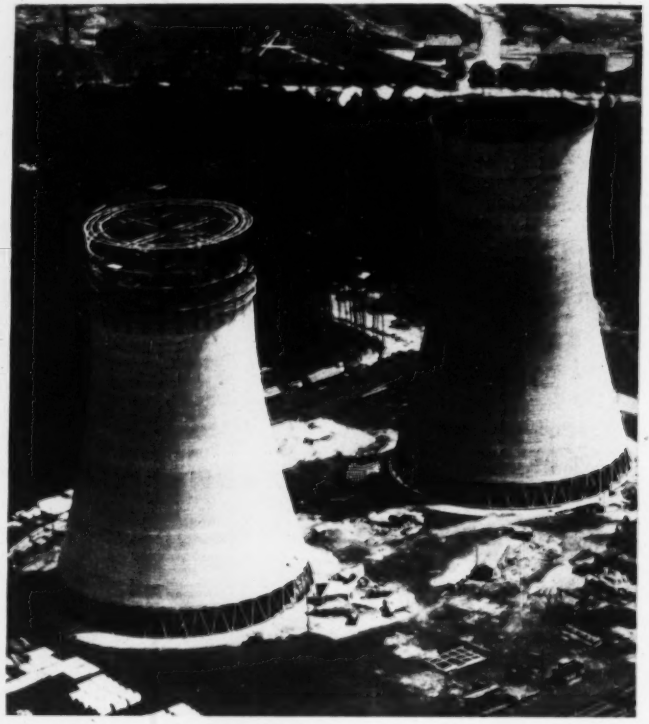


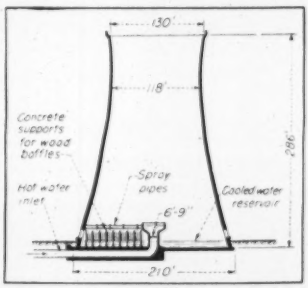
TWO BUILT, TWO TO GO, these concrete French cooling towers each handle 5.75 million gal. of water an hour. They are 286 ft high and 210 ft in diam. at the base.

Europe's biggest water cooling towers are at French mine-head power plant

That part of France's power development program that is concentrated in steam plants burning waste screenings at the Lorraine mine heads (ENR April 5, 1951, p 30) is up against the problem of cooling water, for there are few large streams available. The logical solution lay in the use of air cooling towers, but the water requirements are so large as to throw the structures into a new scale of dimensions. Nevertheless they are being built, with the result that those at the Emile Huchet power plant near Carling are by far the largest on the continent.

Each of the cooling towers at Carling handles 5.75 million gal of water per hour, twice that of the largest previous tower at a plant in the Pas de Calais. There are two of these huge towers completed at the Carling plant, each serving a 100,000-kw generating unit. Two more are planned as a part of the program to bring this plant up to its ultimate capacity of 400,000 kw.

The towers are in reality chimneys, which cool the water by the natural flow of air—in at the base, out at the top. As shown in the accompanying illustrations, they are 286 ft high and



LAYOUT AND DIMENSIONS of the power plant cooling towers at Carling, France.

210 ft in diam at the base. Built of concrete, they have a hyperbolic form. The walls are 16 in thick in the lower third of the height and 4½ in thick above that level. They are supported on a series of doubly-inclined circular columns 18 in. in diam. Inasmuch as there was a good sand foundation, the columns are carried by a simple annular footing.

• **Hot water**—The hot water is brought to the tower in a 80-in. diam conduit terminating in a 30 ft high riser from which the water flows radially into a series of 48 cement-asbestos pipes 8 in. in diam. Each pipe is equipped with 33 nozzles, the spray from which falls into a system of wood baffles or louvres supported on a series of precast concrete posts. During all this time it is subjected to the cooling action of the uprushing air. The water is finally collected in a shallow tank formed by the base of the tower, from which it is available for reuse in the boilers.

The Carling towers were built with the aid of a framework of tubular steel scaffolding (in 48 levels each 6 ft part) from which steel-lined wood panel forms were hung. A total of 44 miles of this tubing was required for the scaffolding and the two material hoists cages.

• **Enough for three**—The form panels were 1½ ft wide and 2½ ft high, and enough were provided for three rings of the tower. They were moved up progressively as the concreting work went forward. Concrete brought up by the hoists were buggied out to the forms over runways supported on the scaffolding, and there were also walkways suspended on the outside for the workmen. Reinforcement consisted of wire mesh near the inside and outside surfaces plus a series of ⅝ in. rods following the generatrices of the hyperbola.

The Carling towers, called "refrigerants" in French, were built by L'Entreprise de Genie Civil et Travaux Publics of Lens under patents of the British firm of L. G. Mouchel & Partners, which are controlled in France by the Societe de Condensation et d'Applications Mechaniques of Paris.

Brief . . .

• **Controlling Dee**—The Bala Lake scheme of the Dee and Clwyd River Board—a dual purpose flood prevention and compensatory water system for the Dee River—has been approved by the Ministry of Agriculture and Fisheries of England. The plan will enable total demands of over fifty million gallons a day on the part of several water authorities to be met.

GERMAN CONSTRUCTION FAIR—The first since World War II has just opened in Hanover and was attended by many West German government officials. Construction firms from nine nations are represented on the grounds, one from Japan. The building shown publicizes the use of aluminum in building.

Foreign briefs . . .

• **The city sinks**—The capital of Mexico has sunk fourteen and one half inches below its average surface level of eight months ago according to Arturo Marin, chief engineer of the Municipal Public Works. He warned that the gravity flow of the city's main drainage canal would be reversed unless emergency measures are taken immediately. Failure to act now means a backup in three years with terrible property damage. He blamed the exceptionally wet rainy season for the sinking of buildings.

• **Which way to Rhodesia**—American and British engineers are conducting a new survey to outline the best rail route between ore-rich Rhodesia and East African ports. The survey is being made under the technical assistance program of the Economic Cooperation Administration.

• **Scotch light**—The North of Scotland Hydro-electric Board brought electricity to 105 villages and housing areas, connected 22,140 new consumers, and generated a record output of 877,979,479 units of electricity in 1950. Research undertaken included investigation into new methods of tunnel driving.

(Continued on page 54)

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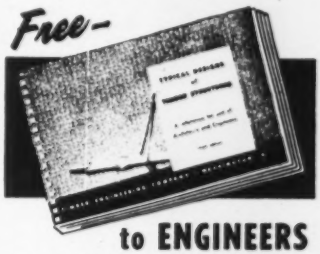

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Short cuts worth following in your

In drafting **Costly retracing is eliminated in producing drawings which include standard components.** The functioning of many IBM machines can be changed by adjusting the wiring on the plug-board panels. And in order to give customers a record of the wiring combinations they will use—without retracing the standard panel detail time after time—IBM follows this short cut:

It makes photographic intermediates of its plug-board panel drawings by reproducing them on Kodagraph Autopositive Paper. Then, to these sharp, clean, translucent prints, the draftsmen simply add the various wiring arrangements . . . and "masters" are available—ready to produce the required number of direct-process prints.

How IBM produces Autopositives

It's an easy, economical operation—revolutionary when compared to other methods of producing photographic intermediate prints.

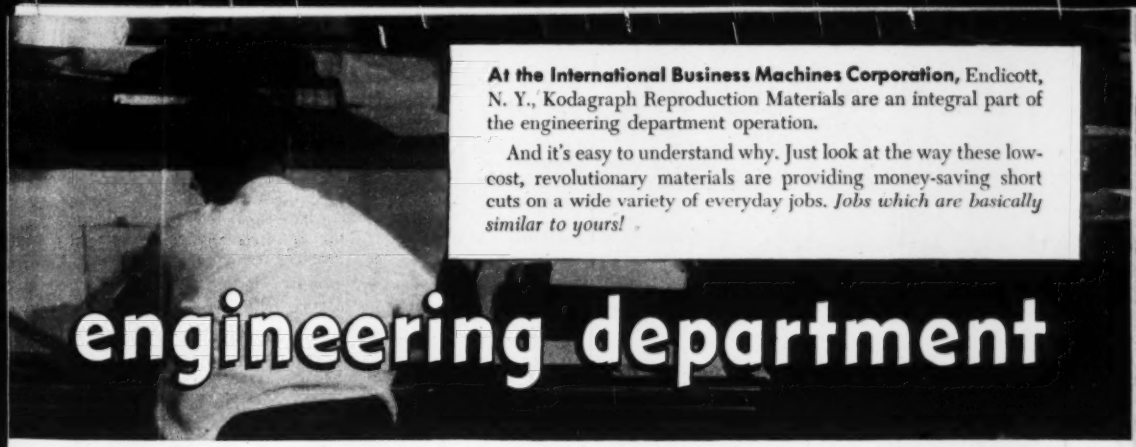
First of all, Kodagraph Autopositive Paper produces positive photographic intermediates directly—without a negative step. Furthermore, it can be *handled* in ordinary room light . . . *exposed* in a direct-process (or blueprint) machine at uniform, practical speeds . . . *processed* in standard photographic solutions. And the result—a sparkling intermediate with dense black photographic lines on a white, durable, translucent paper base.

In copying blueprints

How to get extra copies of blueprints and direct-process prints *quickly and economically* . . . is no problem for IBM. These prints are used to exchange design information between the plants in Endicott and Poughkeepsie, N. Y. Whenever extra copies are needed for the shop, the necessary print-making intermediates are made directly—in both plants—simply by reproducing the blueprints on Kodagraph Autopositive Paper.

In reclaiming old drawings

Some IBM drawings which show the effects of long service—which are discolored, weak in detail, and slow-printing—are reproduced on Kodagraph Autopositive Film. This high-contrast, direct-printing photographic material (which is handled like Autopositive Paper) cleans up backgrounds . . . intensifies line detail—produces intermediates which have dense black photographic



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As many as 25 copies are needed of the monthly engineering department reports, which are prepared on IBM tabulating machines. The quickest, easiest way of getting them, IBM finds, is to make intermediates on Kodagraph Contact or Autopositive Paper, and from them run the required number of direct-process prints.

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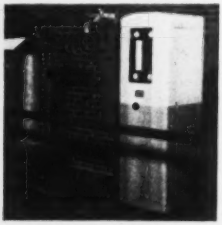

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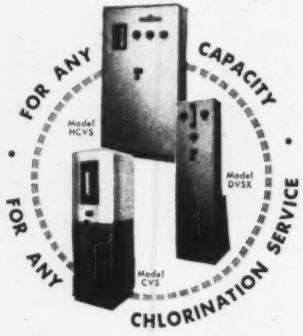

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FOREIGN . . .

Point 4 agreement made with Ethiopian Government

A technical cooperation agreement under President Truman's Point 4 program was signed by the United States and Ethiopia at Addis Ababa.

In September of last year the Ethiopian Government was given two loans of $7,000,000 from the International Bank for Reconstruction and Development. This sum is to be spent on the nation's highway and transportation systems. In accordance with terms of the loans, the Government has set up an Imperial Highway Authority in which Point 4 specialists will collaborate.

The pact just signed is a general or "umbrella" agreement under which specific projects will be set up when careful surveys of Ethiopia's needs have been made.

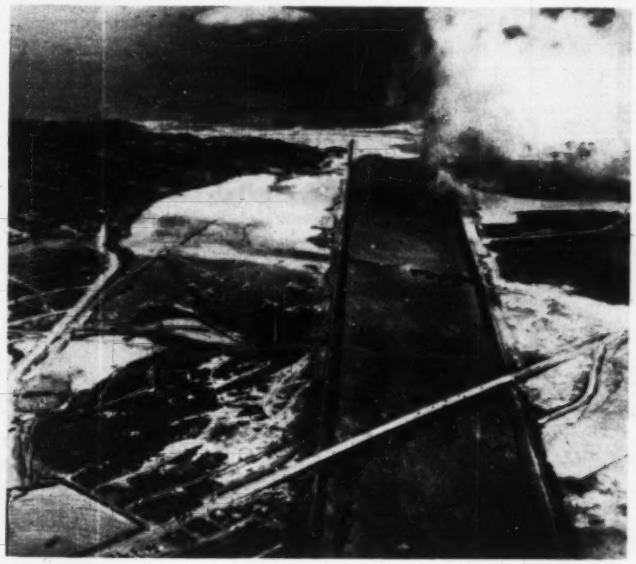
The transportation problem has involved the building of a highway between the city Addis Ababa and the sea.

The Ethiopian Government has made formal requests for technical assistance in a rural development project in the Harar province, the establishment of an agricultural college, aid to primary and secondary schools, assistance in analyzing Ethiopian resources for new development projects, land registration, mineral surveys, and the analysis of specific industries and fellowships for training along these lines as well as a public health assistance program.

Belgian Congo gets loan for building equipment

The Belgian Congo has received a loan of $15,500,000 in the framework of the Marshall Plan, to be used in financing the import of machinery and equipment for various public works. These include the construction and improvement of roads and river navigation (principally on the River Congo) and the construction of new hydro-electric stations at Leopoldville, Stanleyville and Albertville. The loan is for a period of 25 years and carries interest at the rate of 3.25 percent. The first repayment of capital is due in 1956.

The total amount of planned investment for the general development of the Congo this year is $160 million, of which the Belgian Government's own contribution is about $60 million. Direct production investments in the Congo are left to private enterprise. It is expected that these investments will reach $70 million.



MISSION BAY IN TRANSFORMATION—At the mouth of the San Diego River, where the Mission Bay Park & Recreational Development Project will make over the shallow tidal basin into an aquatic park with small boats harbor. In the foreground is the nearly completed Midway Drive Bridge.

Providence pushes court test on law allowing land condemnation for resale

Providence, Rhode Island plans to give industry new breathing space.

But a setback came recently when the state's second constitutional convention in 109 years turned down a proposal to put redevelopment on the agenda of a special constitutional referendum.

So Providence city planners, now committed to tearing down a six-block area on the blighted south side for re-use by private industry, are shifting their sights. Instead, they push for an early court test of existing legislation allowing land condemnation for resale later to private owners.

But the constitutional convention did put the matter of off-street parking on the referendum's agenda.

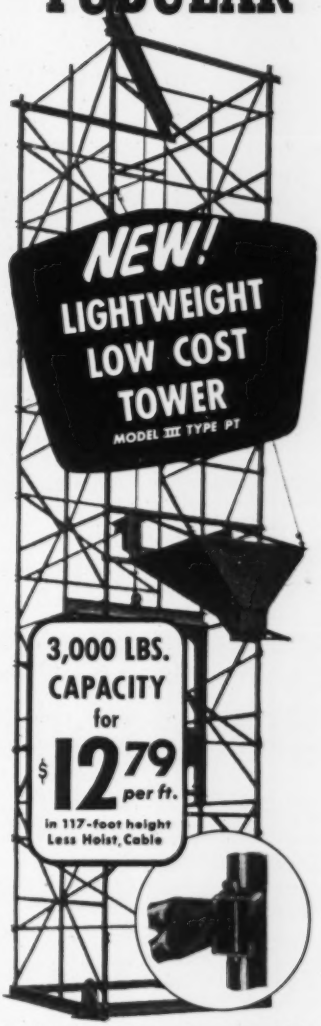
• **Elbow room sought**—Rhode Island's problem, like that of many other older industrial areas on the East Coast, is one of finding elbow room—for its people (many are crowded into substandard housing), and for its mills, many of which are crowded into old-style industrial districts with high materials handling costs, heavy rents and little room for parking or expansion.

Providence established its redevelopment agency three years ago, then gave it the job of finding possible new industrial sites within the city's already crowded borders.

• **Coro the Jewel**—After extensive surveys, the agency came up with its plans. Some 17 blighted areas could produce 300 acres of new industrial lebensraum, the agency reported. As a test, it suggested redeveloping a six-street area surrounding the big jewelry plant of Coro, Inc., a firm that generously had offered to co-operate in planning and reconstructing the area.

Tied in with the program is the agency's plans for extensive new highway construction in the city to give arterial access to the newly opened areas. Interior streets would be eliminated, but perimiter streets and new arterial highways, including a projected north-south freeway linking with the main New York-Boston

AMERICAN TUBULAR



Here's really more for your money in a panel-type tower. Lightweight tubular steel quick to erect (especially in confined places) — is completely assembled with only 11 simplified component parts. Because it's built out of prefabricated panels with integral notch locking mechanism, it requires no bolts or nuts for braces and girts. Available with material platform or concrete bucket and hopper (as shown).

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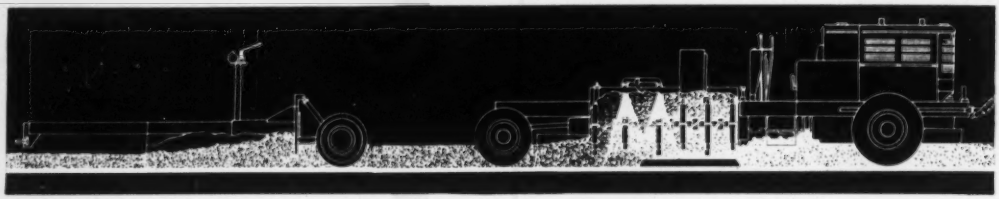

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Both of these units have adjustable capacities from 2 to 8 cu. ft. windrows.

On soil-cement jobs the **Wood Cement Distributor** accurately measures bulk or sack cement into automatically furrowed windrows at rates from 15 to 80 lbs. per lineal ft.

These three machines insure **controlled quantities of materials,** and are integral parts of the Wood Mix-in-Place Method.

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Accurate mixing of materials is controlled by the **Wood Roadmixer**—a complete, continuous pugmill. These traveling mixing plants produce up to 350 tons of ready-to-spread mix per hour, and the texture of the mix is uniform throughout the entire quantity. The secret is **control!**

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Controlled amount of binder — high pressure bypass binder system injects a predetermined number of gallons per lineal foot of travel, insuring positive binder control.

Wood Roadmixers mix **off** the subgrade in a suspended pugmill. Only premeasured materials enter the mixing drum and no oil or cement is lost in the subgrade. **Engineered control** from proportioning to laydown insures **controlled results.** That's what you get when you use Wood Roadmix Methods of Pavement Construction with Wood Roadbuilding Equipment.

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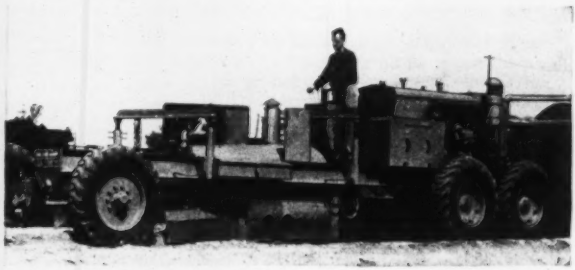

Model 42 Wood Roadmixer. A contractor's tool. Self-propelled and powered. Capacity up to 200 tons per hour. Windrows up to 6 cu. ft.

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route, would be built.

• **A position in life**—the city's wishes to maintain its position as commercial center for a metropolitan area now calculated in excess of 750,000 persons and to slow (or prevent) industrial migration away from the metropolitan area and its consequent drop in taxable valuations and bigger taxes for remaining citizens.

A taxpayer's suit, begun recently, challenges the constitutionality of the entire redevelopment concept. Inviting possible defeat, the state and the city are moving to a speedy decision, hoping for a start this year in a program designed to give new life to its industrial community.

Housing project to test Milwaukee limiting law

Milwaukee's common council has approved construction of a 568 unit addition to the Hillside housing project.

This new addition to the city's housing efforts will be paid for entirely by the Federal Government.

Meanwhile the council's decision may be questioned in the courts. According to William L. Pieplow, temporary chairman of the Citizen's Free Enterprise committee, it is "quite positive that the council's action will be challenged in the courts." The legal battle would center on the city's right to build the housing center without getting the approval of voters in the form of a referendum.

The addition is part of a 2,500 unit low rent housing program planned by the city prior to passage last April of a referendum affecting public housing. Under referendum terms the voters said the city may not build any housing projects without public approval unless the city gets full taxes on the real estate.

The new addition will cost an estimated $6,000,000.

Water rate goes up 87%

Huntington Park, Calif., boosted its base minimum water rate 87%—from 80¢ to $1.50 per month—at the request of H. E. Robinson, city engineer, in preparing to join the Metropolitan Water District at estimated cost of $3,369,000.

Robinson told the city council that Huntington Park must join the district within five years or face a drastic shortage of water, a shortage confronting all of southeast Los Angeles county. Money set aside from the rate increase will accumulate for the first payment to the district of about $330,000 within about three years. Under the basic 80¢ rate per 1,000 cu. ft., the city's water system has earned a profit of $28,000 yearly. With the 70¢ increase, the city will set aside $140,000 annually. After joining the MWD, Robinson estimates that the rate must go to $1.68 per 1,000 cu. ft. The increase does not include any special rate for volume water users but sets the cost at 15¢ per 100 cu. ft. above the 1,000 cu. ft. base.

City briefs . . .

• **Twice three years**—A six-year program for the spending of $17,683,500 on capital improvements from 1951 through 1957 has been handed the Providence, R. I. City Council by the Plan Commission and Finance Director, John J. Cashman. Funds will be used mostly to carry on projects to which the city is already committed, such as sewer and highway work.

• **To furl the smoke**—Akron, O., industries and businesses which have failed to follow smoke reduction orders have been threatened with the possibility of having their equipment sealed. City Smoke Engineer Louis Bunts said that by July 15, 80% of the illegal smoke belching must be eliminated, and a

(Continued on page 58)

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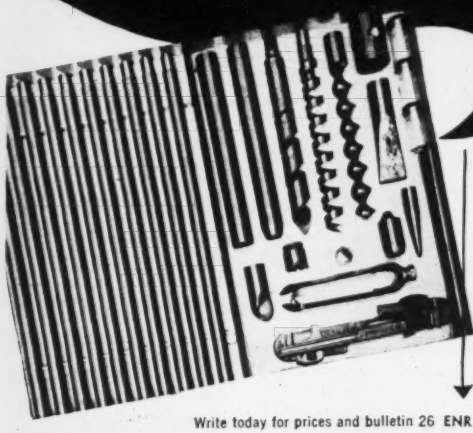

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year later, total compliance must be reached. This is under terms of an anti-smoke law passed four years ago, under which the city has been trying to cut down smoke by a certain percentage each year. At least 40% of the 600 buildings inspected need some work done on their boilers and furnaces before next year's deadline date, Bunts said.

• **Half surface**—Toledo, O., City Council has adopted a new policy on street assessments. The new policy assures property owners that they will be assessed no more than half the cost of resurfacing a street, providing they previously have paid for paving there either through assessment or through purchase price of their property. In the past, Council has been able to assess up to 98% of paving cost against abutting property owners.

• **Castle and the well**—With private consumer demand for water in New Castle, Ind., one million gallons a day more than the present wells are producing, the City Council is split by an argument over the site to drill a new well. One proposal is for a site four miles from the city, while another is to find water closer, saving the cost of so long a pipe. This has delayed any action. Industries in New Castle have suffered from lack of water, and residents have been asked to conserve it. Citizens recall that one day in January, 1950, the reservoir ran out of water and kitchen taps went dry, while several days of rains flooded the streets.

• **Buses damage streets**—City Engineer R. L. Werner of Columbus, Ohio, says buses cause an estimated $136,000 worth of damage to the city's streets annually.

Harbor plan in embryo

A harbor expansion plan is in the embryo stage in Hamilton, according to Ross Harstone, chairman of the Hamilton Harbor Commissioners, who envisions this city as a "great ocean port and trans-shipment point" when the St. Lawrence Seaway is built.

Road, rail and water developments are all part of the schemes now being considered, and they include a vehicular bridge to be built across the bay from Burlington Street West to a point near Holy Sepulchre Cemetery, as well as enlargement of C.N.R. yardage on the Bay front and dockage for ocean-going vessels in the western section of the Harbor.

For Radial Bearings that permit axial shaft movement

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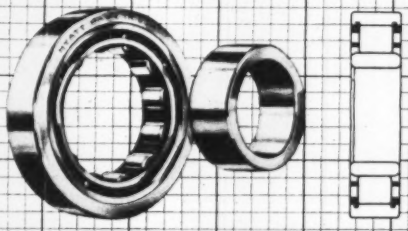
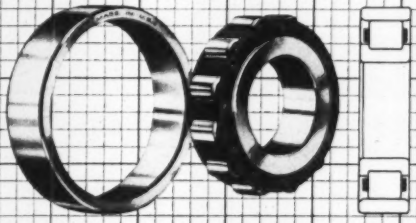


A-TS TYPE
HYATT HY-LOAD



BU-Z TYPE
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THE straight cylindrical race in each of the bearings pictured here permits axial freedom of the shaft to accommodate thermal expansion or other limited shaft movement. This is but one of the advantages enjoyed by designers who employ the Hyatt line of Hy-Load Roller Bearings. Others include: option of omitted race operation, complete interchangeability of parts, maximum capacity for standard dimensions—and long trouble-free life.

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EXTRA production can be taken for granted with PIONEER equipment on the job.

Operating out of Memphis, for example, a PIONEER Model 101 CONTINUFLO Bituminous Plant rated at 110-135 tons per hour capacity has been setting new records on a Mississippi River erosion control project.

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The Sam Finley Corporation's job is to lay 5" of uncompacted asphalt from near the water's surface up and over the bank which has been graded to a 3 to 1 slope. Materials are sand with 6% asphalt added. The sand, with 10-15% moisture content, is obtained from nearby bars in the river and delivered by barge, from which it is loaded directly into the drier hoppers. Operating 4 or 5 months per year, with two driers in tandem, the plant has produced about 300,000 tons in the two years since its installation . . . another instance where PIONEER'S extra capacity, coupled with built-in ruggedness and stamina have meant *extra* production to a good operator.

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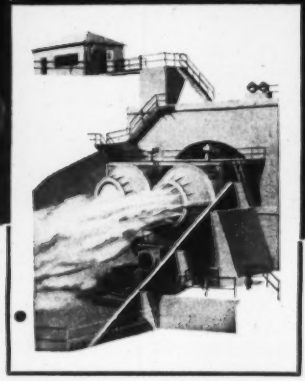
One way such equipment builders protect their customers' equipment investment is the application of the *Lukenomics* principle. For Lukenomics combines their experience and that of designers and engineers, with Lukens specialized knowledge of materials and their application. For names of equipment builders applying this principle, write, stating your problem, to Manager, Marketing Service, Lukens Steel Company, 513 Lukens Building, Coatesville, Pa.



For accurate regulation of fast-flowing, debris-laden water in a key dam, four specially designed Venturi tubes of Lukens Nickel-Clad Steel were developed. For maximum discharge, these Venturis have exceptionally high throat velocities and a differential pressure of about 22 ft. of water between inlet and throat. In use, the Venturis' nickel surfaces have work-hardened and, after 14 years of accurate metering with minimum maintenance, operation is more efficient than when installed. By using nickel-clad steel, the equipment builder economically assured long equipment life—helped conserve important materials. *This is Lukenomics at work.*

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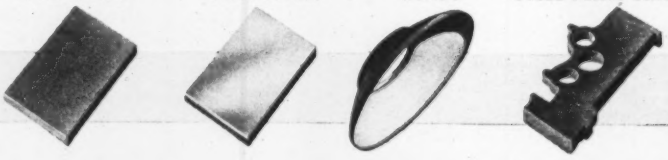

MEN AND JOBS

David B. Steinman, bridge engineer and author, second from left presenting Distinguished Service Awards to Rudolph Halley, former counsel to the Kefauver Committee, and Harold H. Funk, consulting engineer with Barrington Associates, at the recent annual dinner of the New York Chapter of the New York State Society of Professional Engineers. Looking on is H. Gregory Shea, right, who was installed as president of the New York Chapter.

New Appointments—

Highways

Reorganization of the Illinois state division of highways has resulted in 14 additional changes in technical personnel:

C. B. Cunningham, former maintenance engineer has been promoted to assistant district engineer;

H. L. Brantley, former materials engineer, to design engineer;

S. E. Patterson, former assistant construction engineer to materials engineer.

R. R. Shewmaker, formerly maintenance field engineer to maintenance engineer;

E. K. Damotte, former civil engineer, to assistant design engineer;

H. B. Emery, former assistant district engineer to assistant traffic engineer;

H. C. Bright, former assistant design engineer to assistant research engineer;

R. S. Cooke, to assistant construction engineer;

T. E. Morf, to assistant engineer of the bureau of research and planning;

Frank V. Houska, former supervisor of traffic studies to engineer of economic research;

W. E. Chastain, former assistant district engineer of design at Paris to engineer of physical research;

L. C. Reime, former engineer in charge of bituminous mixes, bureau of materials, to supervising engineer, bureau of construction;

H. J. Alton, former supervising engineer, to engineer of road plans and contracts, bureau of design.

E. D. Dryfoose, former engineer of road plans to traveling engineer for the bureau of designs.

Walter E. Hanson, associate professor of civil engineering, University of Illinois, has accepted the position of bridge engineer, Illinois State Highway Department.

Glenn Key, owner of an extensive gasoline transport fleet, has succeeded Paul Wilson, banker, as member and secretary-treasurer of the Oklahoma Turnpike Authority.

W. F. Knarr, former assistant First District engineer has been appointed Third Highway District engineer at Louisville, Ky. Replacing Mr. Knarr in his former position is **George F. Walker,** resident construction engineer at Marion.

Government Agencies

Dr. H. G. Baity, professor of sanitary engineering at the University of North Carolina School of Public Health, Chapel Hill, N. C., has been appointed to the advisory panel of the World Health Organization.

Maurice L. Brashears, Jr., District Geologist, Mineola, N. Y., office of the ground water branch, water resources division, U. S. Geological Survey, has returned to his position at Mineola following a tour of duty as visiting expert on water supplies to the Supreme Commander of the Allied Forces in the Pacific and to the Japanese Government.

Resignations—

Allen Wagner has resigned as ARBA director of public relations to become assistant to the chairman of the U. S. Civil Service Commission.

W. L. Lowe-Brown has retired from his long-time association with the firm of Sir M. MacDonald & Partners to open an office of his own at 39 Victoria St., London, S. W. 1. Mr. Lowe-Brown has belonged to the American Society of Civil Engineers since 1907.

P. H. Van Etten, 63, water expert in California, has retired from his job as assistant state engineer.

George L. Kirk, chief engineer of the Lima, Ohio, waterworks pump station for 36 years, has retired after 48 years' service with the city.

Charles M. Chumley, engineer in the maintenance of way department Illinois Central Railroad has retired after 48 years service. He spent almost all of that period in the bridge and building department.

R. H. Willis, after 36 years with the state of Nebraska has retired as director of the State Bureau of Irrigation.

W. E. Ross, Richmond, Ind., city engineer, has resigned to devote all his time to serve as sewage disposal plant superintendent there. He previously held both posts.

Clarence G. Tugend, state highway maintenance superintendent in Richland County (Mansfield), Ohio, has resigned to enter business.

ACTING REGIONAL ENGINEER—A. A. Lewis, 1928 graduate of Texas A. & M.'s school of engineering, has been named acting regional engineer for the Bureau of Reclamation's southwestern region, with headquarters at Amarillo, Tex. Former Regional Engineer O. I. Craft, who resigned recently because of ill health, had been with the Bureau since 1927. An employee of the Bureau since 1934, Lewis served eight years in the Chief Engineer's Office at Denver prior to transferring to the Bureau's regional office at Amarillo in 1946.

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9. **High torque motors.**
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11. **May be mounted in any position.**
12. **Three to four times faster handwheel operation.**

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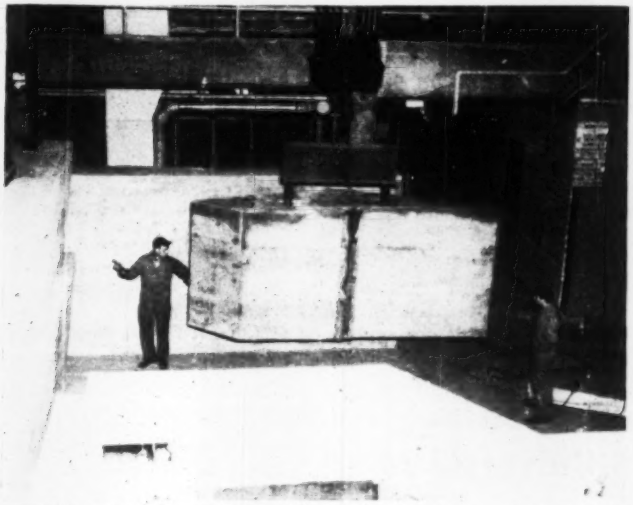

SETTING ONE OF THE WALL blocks of heavy concrete used to shield the University of Chicago's cyclotron.

Extra-heavy concrete shields cyclotron

Need for atomic shielding in nuclear research has produced a new product—extra-heavy concrete. Already used to enclose part of the University of Chicago's Synchrocyclotron, this special product is undergoing additional research. Although the details—and even the locations of some of the work—are closely guarded, it is known that one project is being handled by the Illinois Institute of Technology. Prof. E. I. Fiesenheiser, there, was in charge of the design and construction of the University of Chicago shielding.

The effectiveness of a shield against the penetration of neutron radiation is roughly proportional to e (base of Napierian system of logarithms) raised to the power of the thickness or density. For example, a thickness of 2 ft is 2.72 times as effective as a thickness of 1 ft. Also, for concrete, if the density can be doubled, 1 ft of the heavier material will be 2.72 as effective as 1 ft of ordinary concrete weighing 150 lb per cu ft. If 4 ft is used the effectiveness over 1 ft rises to 7.4 times and for 8 ft to 55 times.

On the Chicago installation, one particular shielding wall consists of pre-cast blocks of concrete made with metal aggregates, giving a unit weight of 300 lb per cu ft. (In some of the research, concrete weighing as much as 370 lb per cu ft has been made). The wall is 12 ft thick, 15½ ft high and 37 ft long. A total of 25 blocks was required, weighing up to 100 tons each, the capacity of the crane available to set them. One special block is a wedge-shaped door mounted on wheels and weighing 67 tons. It is moved on rails by hydraulic cylinder.

No details are available as to the mix or type of metal aggregates used. It was announced, however, that to avoid distortion, the forms were designed for double the usual pressures.

In contrast to the heavy concrete used for one wall of the shield at Chicago—where personnel and sensitive equipment had to be protected in a special lab room—the roof was made of ordinary concrete—10 ft thick—in the form of precast beams. The limits on neutron penetration through the roof were, of course, much more liberal than through the wall mentioned above. This roof work was described in an article in these pages Nov. 24, 1949, p 44. For the Chicago work—both roof and walls—Paul Schwendener, Chicago, was the contractor. The metal aggregates were furnished by John S. Gray of East Chicago.

Heavy research schedule takes place in Illinois

Eight research projects have just been started in the State of Illinois. Cost of the studies will exceed $54,500,000.

Four of the projects will be undertaken by the University of Illinois for the state government. The university's civil engineering department will study the impact of highway bridges at a cost of $10,000. A study of reinforced concrete slabs will cost $15,000. Riveted and bolted structural joint studies costing $10,000, and a study of prestressed reinforced concrete highway bridges costing $1,500 are also planned.

Other studies contracted for include another $10,000 study of riveted and bolted structural joints for the Veterans Administration which has been made with the University, as well as an $8,000 research into reinforced concrete columns for the Reinforced Concrete Research Council.

Illinois Institute of Technology has also contracted to study multi-story apartment building construction for the Housing and Home Finance Agency, according to Chester A. Arents, coordinator of research at the Institute. The work will be keyed to the specific needs of the Chicago Housing Authority in connection with its low rent housing program. Results will be made to the CHA and the industry at large.

The investigation will cover essential structural features such as footings, frames, walls and partitions, floor systems, roof, stairwells, etc., according to Elmer I. Fiesenheiser, associate professor of civil engineering at the Institute.

Meanwhile a Snow, Ice and Permafrost Research Headquarters at Wilmette, has been established for the Department of Defense, the Army Engineers announce.

Soil testing on T.V.

Soil boring operations were featured recently in a Chicagoland Television newsreel in two separate showings on WGN-TV.

The scene was the site of a proposed Memorial Hall for Northwestern University, Evanston, Illinois, and the television screen showed the full sequence of soil sampling operations being made by Soil Testing Services, Inc., 4520 W. North Avenue, Chicago. Each step was explained in detail as the borings were made and samples secured. These were followed by a field unconfined compression test made by the soils engineer in charge.

with
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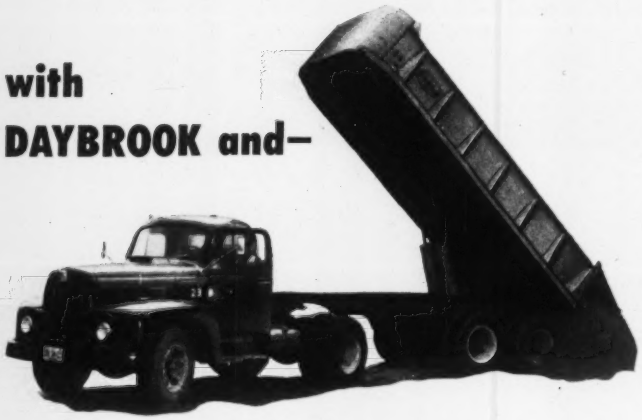

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All these prominent manufacturers build dump bodies. And all build for strength, dependability and economy. That's why it's significant that each one specifies Blood Brothers Universal Joints to transmit engine power through an angle to hydraulic pump.

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EDUCATION, RESEARCH

• **Fluid mechanics**—Beginning in September, Georgia Institute of Technology will expand its graduate instruction in fluid mechanics and hydraulic engineering leading to the degree of M.S. in Civil Engineering.

• **Masonry-concrete research**—The University of Toledo's research foundation has received an $18,000 contract for masonry-concrete research from the Housing and Home Finance Agency. The research will cover the relationship between the shape, strength and treatment of concrete-masonry units and the shrinkage and cracking of wall specimens.

• **Gifts to Cornell**—Gifts of $1,175,000 towards a $1,736,000 materials testing and processing laboratory being built at Cornell University have been announced. Dean S. C. Hollister says completion of the units early in 1953 will enable the college to undertake new defense research.

• **Nuclear degree**—N. C. State College at Raleigh, N. C., in September will begin offering training leading to Doctor of Philosophy Degrees in nuclear engineering physics, becoming what is claimed to be the first educational institution in the United States to offer such a Ph.D. in nuclear engineering and one of the few colleges or universities in the country to grant the Ph.D. degree in engineering physics, according to an announcement June 1 by Chancellor J. W. Harrelson.

• **Pure water for troops**—A quick and pure water supply for small bodies of isolated troops is assured with an emergency water treatment unit developed at the California Institute of Technology. In a recent demonstration at the Air Force School of Aviation Medicine, the unit converted raw sewage into chemically pure and sterile water. Less than a cubic foot in size and weighing less than 12 lb., the unit is operated by a simple hand pump; a strainer on an intake hose takes out algae, a chemical filter takes out suspended matter and kills bacteria. The unit will deliver pure water at the rate of two quarts per minute for 30 to 40 minutes, after which the filter must be replaced.

• **Concrete blocks**—Ceramists at Armour Research Foundation, Chicago, are using a new 100 percent humidity curing room to make studies for stronger, cheaper and lighter concrete blocks for home-builders.

MEETINGS

The National Standardization Conference will concentrate on the part standards are playing in national defense when it holds its second annual meeting on October 22 through 24 at the Waldorf-Astoria, New York. Announcement of the meeting was made by Vice Admiral George F. Hussey, Jr., managing director of the American Standards Association which will hold its 33rd annual meeting in conjunction with the conference. Admiral Hussey, wartime Navy Bureau of Ordnance Chief, said the theme of the conference would be "Strengthening America through Standards." The program committee in charge of the conference consists of Thomas D. Jolly, Pittsburgh, president of ASA and vice-president, Aluminum Company of America, chairman; C. W. Bryan, Jr., Chicago, president, Pullman-Standard Car Manufacturing Co.; W. J. Donald, New York, managing director, National Electric Manufacturing Association; E. H. Eacker, Boston, president, Boston Consolidated Gas Co.; Roger E. Gay, Hartford, president, The Bristol Brass Corp.; W. P. Kliment, Chicago Crane Co.; and F. R. Lack, New York, vice-president, Western Electric Co.

The Highway Research Board has selected January 15 through January 18, 1952, as the dates for its 31st Annual Meeting. Monday, January 14, will be set aside for business meetings of the Departments and Committees of the Board. The meetings that are will be held in Washington, D. C., at the National Academy of Sciences.

The Upper Penninsula Road Builders Association of Wisconsin has elected Edgar R. Nelson of Iron Mountain its new president at its recent annual meeting in Milwaukee, Wisconsin. Elected vice-president was William J. Karas of Escanaba. The office of secretary-treasurer went to Harold J. McNamara of Manistique.

The Florida Society for Professional Engineers installed its new officers recently at a Jacksonville dinner at the Seven Seas restaurant. Jules P. Channing took office as new president succeeding Palmer H. Craig, who became chapter director. Other new officers include Leonard W. Cutler, vice-president, and Herbert Saffir, secretary. Speaker at the meeting was Harold Turk, Miami Beach councilman and member of the Florida Improvement Association and the board of the National Rivers and Harbors Committee. Robert O. Swaim, executive director of the International Road Federation Pan American Convention has announced plans for a meeting of this organization to be held at the Municipal Palace, Lima, Peru, on October fifth and sixth. The Fifth Pan American Highway Congress will also be held in Lima, October 8-14.

Gus Rayner, executive secretary of the New York State Bituminous Concrete Producers Association has just announced that group's plans for its seventh annual convention to be held at the Hotel Roosevelt, Madison at 45th Street, New York City, on December sixth, 1951.

CALENDAR

Bureau of Reclamation, annual programming conference, Wenatchee, Wash., July 23-27.

National Conference on Prestressed Concrete, Massachusetts Institute of Technology, Cambridge, Mass., Aug. 14-16.

Canadian section, American Sewage and Sanitation Equipment Association, Royal York Hotel, Toronto, Ont., Aug. 20-22.

New England Water Works Association, Hotel Statler, Boston, Mass., Sept. 10-12.

Minnesota section, American Water Works Association, fall meeting, Hotel Nicollet, Minneapolis, Sept. 12-14.

N. Y. section American Water Works Association, fall meeting, Whiteface Inn, Lake Placid, N. Y., Sept. 13-14.

Public Works Congress and Equipment Show, Memorial Bldg., Detroit, Mich. Sept. 16-19.

Pennsylvania Section, American Water Works Association, Bellevue-Stratford Hotel, Philadelphia, Pa., Sept. 19-21.

Kentucky-Tennessee section, American Water Works Association, fall meeting, Louisville Kentucky Hotel, Louisville, Ky., Sept. 17-19.

Michigan section, American Water Works Association, fall meeting, Whitcomb Hotel, St. Joseph, Sept. 19-21.

Rocky Mountain section, American Water Works Association, fall meeting, Hotel Cosmopolitan, Denver, Colo., Sept. 24-25.

9th International Road Congress, Permanent International Association of Road Congresses, Lisbon, Portugal, Sept. 24-29.

Alabama-Mississippi section, American Water Works Association, Buena Vista Hotel, Biloxi, Miss., Sept. 24-26.

Wisconsin section, American Water Works Association, fall meeting, Pfister Hotel, Milwaukee, Sept. 25-27.

Ohio section, American Water Works Association, fall meeting, Commodore Perry Hotel, Toledo, Ohio, Sept. 27-28.

Missouri section, American Water Works Association, Hotel Robidoux, St. Joseph, Mo., Sept. 30-Oct. 2.

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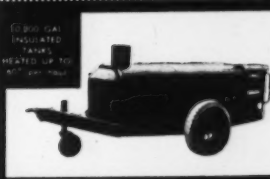

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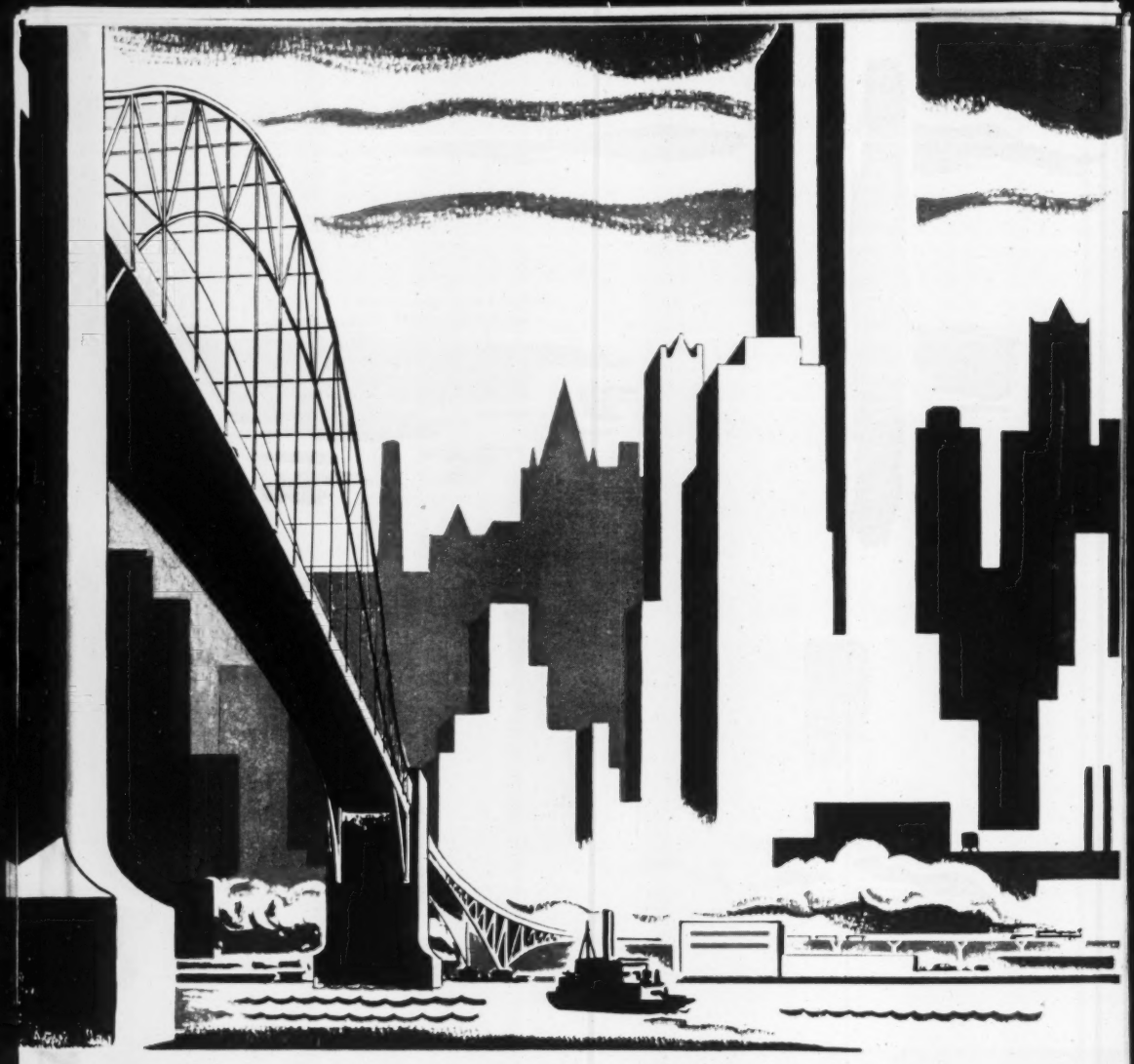

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OBITUARY

William J. Shaw, who retired as division engineer of the New York Central system's Canadian division, died at his home in St. Thomas, Ontario, July 13.

Edward Wardle, 77, consulting engineer for the Consolidated Paper Co. of Montreal, died at his home in Meriden, Conn., July 11. Mr. Wardle was a graduate of Dartmouth College, and began his career with Tower & Wallace of New York City and with George F. Hardy.

John F. Draney, 90, who retired in 1931 as a Lackawanna Railroad engineer, died in Jersey City, N. J., on July 7. He was a former president of that road's veteran's association, and recently had been taking part in a television program "Life begins at 80." Draney in 1901 was the engineer that took a physician in record time from New York to Buffalo to tend the assassinated President William McKinley.

Edwin M. Dwyer, 57, power department head of the American Cyanamid Co. plant of Linden, N. J., died July 10 at Cranford, N. J. Mr. Dwyer was a naval veteran of the first World War.

Aaron Fowlow, 78, retired structural engineer who had worked on the building of the Panama Canal, died July 9 in Watertown, N. Y. He worked as structural engineer in Boston, Buffalo, Pittsburgh and Toronto and served as consulting engineer for the Chicago Bridge Co. and the Pittsburgh Steel Co.

Kenmore F. Gill, 85, president of the John Gill & Sons Co., contractors, died July 12 in Cleveland. Mr. Gill and his company constructed the Missouri State Capital, in Jefferson City, the Naval Training Station at Hampton Roads, Va., and the Hotel Benjamin Franklin in Philadelphia. He was a director of the Cleveland School of Architecture. In his own city of Cleveland he built the Union Terminal, the Hanna Building, the Masonic Auditorium, the Federal Reserve Bank and the University Hospital.

John W. Gray, Sr., 47, secretary-treasurer of the Virginia Engineering Co., died July 9. Mr. Gray was associated with the firm ten years.

John W. Hazell, 69, plumbing and heating contractor died in Cranford, N. J., July 12.

Orville O. Hill, 47, assistant chief engineer of the Stewart-Warner Corp. radio-television division, died July 10 at Maywood, Ill. Mr. Hill had been with the firm since 1926, and for six years was chief radio engineer for its Canadian division. During World War II he was project engineer for the company's naval communication equipment contracts.

Howel B. Hulsey, architect partner of Hulsey & Hall, died at Baptist Hospital, Memphis. Mr. Hulsey was a 1926 graduate of Georgia Tech, and immediately thereafter entered the design team which captured three gold medals in two years for their work on the Irving Trust Building at 1 Wall Street, the Western Union Building, and the River House Apartments all of New York City.

Ward B. Perley, 87, president of the Canadian Steel Corp., Ltd., died July 9, in Dublin, Ohio. In 1900, as a partner of the Dunn-Perley Steel Corporation he helped build one of the first steel skyscrapers in the Midwest. He started his career with the Franklin Furnace Co. and was later assistant to the president of United States Steel in New York.

Richard G. Sales, Jr., 49, twelve years an engineer with Union Carbide & Carbon Corp., died July 9 at Elizabeth general hospital, Elizabeth, N. J.

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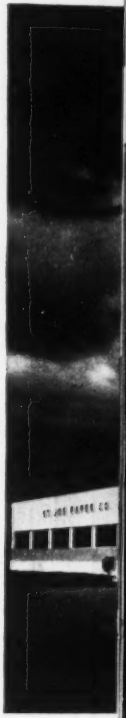
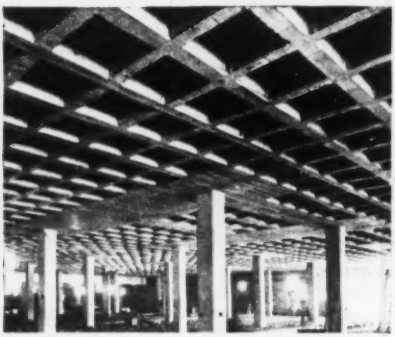
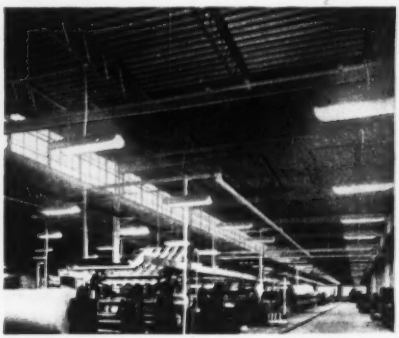


There's a double job facing building today that has to be done on the double. For the industrial plant of America must expand . . . to build our defenses . . . to provide a healthy economy at home. And yet we must save our vital resources of men, material . . . yes, money, too. And to help you meet this double demand, Ceco offers a double-duty building service . . . two construction methods. Each is versatile enough to meet specialized building needs . . . efficient enough to use a minimum of critical resources . . . two types of joist construction—fire-resistive—each saving three big ways.



Meyer Steelform Construction uses little steel, provides long spans, maximum manufacturing area free of columns.



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LABOR

Closed shop elections seen on way out

While odds must still be against it, chances are improving that Congress may wipe out the union shop authorization polls required by the Taft-Hartley Labor Law before union membership to hold a job can be made compulsory.

There are three reasons for this rising optimism:

(1) Strict interpretations by the National Labor Relations Board of the anti-closed shop rule as it affects construction industry hiring practices and of the non-Communist affidavit requirement as it affects contracts with union security clauses.

(2) Behind-the-scenes dickering by the AFL building trades dept. with labor-friendly Sen. Hubert H. Humphrey, chairman of the Senate Labor-Management Relations subcommittee, and Sen. Robert A. Taft in an attempt to get Taft-Hartley amended so that at least the construction industry is exempt from union shop polls.

(3) Congressional interest, right now, in economy.

• **Strictly speaking**—NLRB's strict application of Taft-Hartley to closed shop or union shop situations was demonstrated in recent decisions.

In a decision against Del E. Webb Construction Co. and the AFL laborers, it found a verbal closed shop arrangement as much in violation of the law as a written agreement.

Later, it decided that the CIO Automobile Workers contract with the Ford Motor Co. at Canton, Ohio, could not stand in the way of an election requested by a rival AFL union because it contained a union-shop clause authorized by the employees in a poll conducted by NLRB at a time when top CIO officers had not signed non-Communist affidavits.

• **New vote needed?**—This cast a cloud over 4,700 union security contracts stemming from elections held for CIO unions during the more than two years that elapsed between passage of the Taft-Hartley law and the CIO's compliance with affidavits in Dec., 1949.

In a case brought by the International Association of Machinists, the board decided that a clause in the contract between the Associated General Contractors and the AFL building trades in the Rocky Mountain area violates Taft-Hartley—not in the language, but in the "meaning" given to it.

"It becomes clear," NLRB finds, "that the parties mutually interpreted and administered the contract as requiring the company to hire through, or subject to clearance by, the unions—clearance being conditioned upon union membership."

It therefore found Utah Construction Co. and the AFL carpenters' union guilty of discriminating against members of the machinists union (then independent, now AFL-affiliated) who sought jobs on a construction project for Kennecott Copper Co. at Garfield, Utah, in 1949.

The Taft amendments to Taft-Hartley, passed by the Senate in 1948, would have dropped these polls.

But any attempt to correct this piece of the law ran into conflict with administration and general CIO and AFL efforts for repeal of Taft-Hartley and a return to the Wagner Act.

NLRB throws out verbal closed-shop agreements

Verbal closed shop arrangements violate the Taft-Hartley law, just as if they were written agreements, the National Labor Relations Board decided in a case this week.

NLRB ruled that the Del E. Webb Construction Co., of Kansas City, Mo., and the AFL's Hod Carriers' Union had an illegal oral agreement requiring hiring through the union.

End Paducah atom-plant walkouts

A series of walkouts at the Atomic Energy Commission's enormous gaseous diffusion plant now under construction at Paducah, Ky., ended July 15 after undisclosed agreements between unions and the general contractor.

The walkouts started July 5 when members of the AFL's International Brotherhood of Operating Engineers walked out in protest over the fact that electricians were operating mechanical posthole diggers.

Action of the operators idled nearly 7,000 other craftsmen and laborers.

Colorado court upholds hiring non-union men

The right of a contractor to hire non-union workers on a highway bridge job was upheld in the Colorado State Supreme Court, when the

(Continued on page 74)

How critical can you be?

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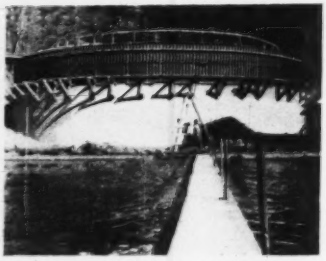
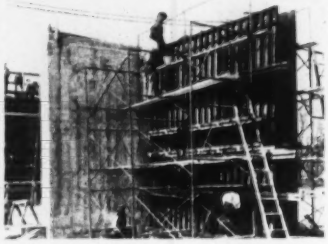


Speed forms as used on circular tank 80'-0" I.D. by 21'-0" high poured in three lifts of one set 8' forms. Water Supply System, St. Johnsville, N. Y., Morreli Vrooman Engineer, Weber Const. Co., Contractor.



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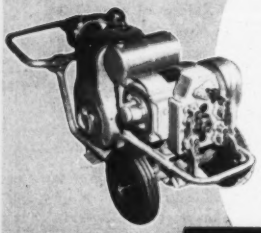

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Labor . . .

court affirmed a lower court decision that had found labor unions had attempted to coerce the contractor.

The action was brought by Henry Shore, Littleton, Colo., contractor, who charged that three building trades unions—the International Union of Operating Engineers, the International Association of Bridge, Structural and Ornamental Iron Workers, and the Denver Building and Construction Trades Council—had demanded that he employ union workers exclusively, and on his refusal, picketed his project.

Shore further charged that the unions induced their members already employed on the job to strike, and attempted to cause him to discriminate against employees not belonging to unions by forcing him to require that all employees become union members.

A district court upheld the contractor's contentions, and found that the unions had engaged in unfair practices under the state's laws. Union attorneys carried the case to the high court.

Labor briefs . . .

• **Dallas raises**—Dallas bricklayers, roofers and painters have been granted pay increases as of July 5 by local contractor groups. Roofers' wages went up 5 cents to $1.92½ cents an hour for built-up roofs; and from $2.12½ to $2.17½ for tile and slate roofs. Painters got 7½ cents an hour, to $2.20; bricklayers got $2.50 more a day, to $27.50.

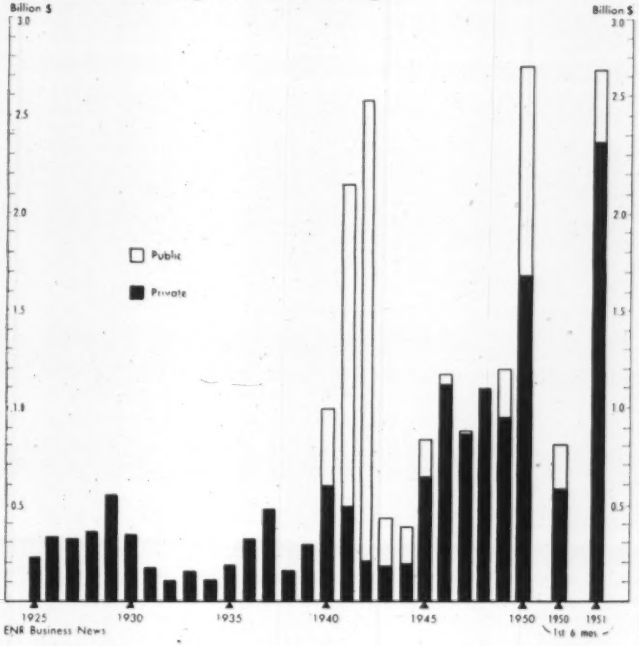
• **Delaware Tunnel strike ends**—A walkout of more than 500 workers on a section of New York's Delaware Aqueduct (ENR July 19, p. 94) ended when the men, members of AFL's hod carriers union, returned to work pending settlement of their demands for "recognition of the high cost of living."

• **End Cleveland walkout**—A one-day walkout of members of AFL's Excavating and Building Materials Drivers at Cleveland ended after workers agreed to accept renegotiation of their contract, and new wage terms. The 2,300 drivers walked out over delay in obtaining federal approval of a two-month old contract calling for a 10-cent hourly pay increase.

• **Rename Dayton group**—The former Dayton Construction Contractors Assn. has been renamed the Dayton District Building Trades Employers Assn., to negotiate contracts with 10 of the 16 building trades unions there.

CONSTRUCTION BUSINESS

Industrial building hits all-time high



Industrial plant shift seen to interior

The biggest and fastest private industrial building program in history has rolled up a total of $2,375 million in contracts awarded during the first six months of 1951—an all-time record. The total is 310% more than in the same period of 1950 and 40% more than the total for all 12 months of 1950.

Under the double drive of an all-out expansion of military capacity, plus the need to keep up with growing civilian demands, industry concentrated its greatest building efforts in the interior sections of the United States, a survey of Engineering News-Record's tabulation of contracts awarded discloses.

Well ahead of the rest of the six geographical areas into which ENR divides the U. S. were the Middle West and the area west of the Mississippi, where contracts valued at $623 million and $575 million, respectively, were let within the six-month period. Totals for other areas were: Middle Atlantic, $544 million; South, $437 million; Far West, $146 million; and New England, $50 million.

• **Shift evident**—On the basis of ENR's contracts awarded figures, this is the picture of industrial building in 1951:

The Middle West and west of the Mississippi had 50% of the total—26% and 24% respectively. The South had 18%, Middle Atlantic 23%, Far West 6% and New England 2%.

In comparison with the year 1949—a period during which the sharp shift away from older manufacturing areas became marked—the percentage changes mirror the trend.

Compared with 1949, the Middle West advanced 4 percentage points (of the national total) and became leader in the nation; the west of Mississippi actually dropped 3 points but remained in second place with 24%; the south went up 7 points, to 18% of the national total; the Middle Atlantic went up 7 points (due almost entirely to work in Pennsylvania); the Far West lost ground, dropping 13 points to 6%; New England also dropping, 2 points, to 2%.

(Continued on page 77)

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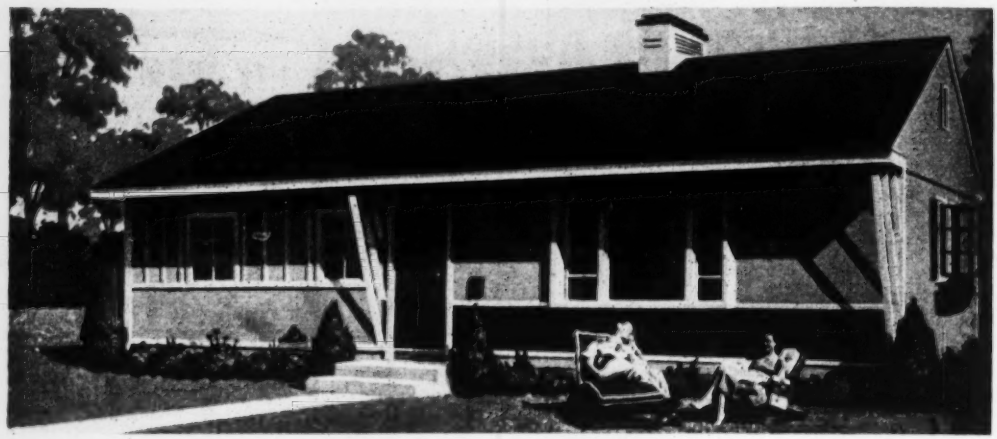


THE CORONADO, new-model Gunnison Home, is available in five sizes . . . two or three bedrooms . . . two elevations.

TWENTY-FIVE MINUTES is time enough to produce a home on the efficient Gunnison production line. Photo shows the quality-control inspection prior to the application of finishes.

Typical uses of penta-treated wood

Wherever wood is used, penta treatment will give it longer life. The following table gives the amount in pounds of 5% penta solution in oil that a cubic foot of wood should retain for maximum protection.

	Humidity average to low	Humidity average high
Sills and plates	6	8
Joists and girders	6	8
Screeds and subflooring	6	8
Factory flooring	6	8
Roof plank	6	8
Platforms and decking	6	8
Posts and fences	6	8
Cooling towers		8-10
Sign material	6	8
Millwork	6	8
Highway guardrails	6	8
Railway cars	6	8
Bridge timbers	8	10-12
Utility poles	8	8-10
Crossarms	6	8

Note: Higher treatments are recommended where wood is to serve under severe conditions, such as in the tropics. Recommendations will be furnished on request.

"You are assured of VALUE . . ."

"You are assured of VALUE when you buy a Gunnison Home," says Gunnison Homes, Inc., subsidiary of United States Steel Corporation, "because only the finest materials and craftsmanship go into the manufacture of these 'homes of tomorrow'!"

Wood, treated with Monsanto Penta (pentachlorophenol), is one of the assured-value features of Gunnison Homes. The Gunnison factory, at New Albany, Indiana, applies penta to the base of studs and the gutter end returns of all its homes. Gunnison dealers are instructed to penta-treat other important parts of the structures.

Water-repellent formulations of Monsanto Penta provide dimensional stability which is important in prefabrication. In the case of Gunnison Homes, penta formulations are *clean*. The treated wood can be painted, varnished or given any of the modern finishes.

Monsanto Penta adds years to the life of wood by protecting it against termites and other wood-boring insects and by preventing decay caused by fungi. It is a stable chemical that gives lasting protection. It does not leach. Rain and ground water do not dissolve penta and carry it away.

Whether you employ wood in trim or for heaviest structural timbers, you can give it longer life with Monsanto Penta. Write for information on penta and for names of suppliers of penta-treated lumber, penta solutions or custom-treating service. MONSANTO CHEMICAL COMPANY, Organic Chemicals Division, 1759-F South Second Street, St. Louis 4, Missouri.

DISTRICT SALES OFFICES: Birmingham, Boston, Charlotte, Chicago, Cincinnati, Cleveland, Detroit, Houston, Los Angeles, New York, Philadelphia, Portland, Ore., San Francisco, Seattle. In Canada, Monsanto (Canada) Ltd., Montreal.

MONSANTO
CHEMICALS – PLASTICS

SERVING INDUSTRY . . . WHICH SERVES MANKIND

Construction business . . .

• **Shift permanent?**—A study of ENR's measured backlog (ENR July 19, p. 92) indicates that this move to interior areas is not a temporary thing. Observers have long felt that such a thing was in the making, due not only to lessened vulnerability to attack, but also to cheaper land, better communication facilities, and the need to provide large available areas for expansion of plant.

The backlog backs up this conclusion. With a record high of $7,596 million in industrial building contracts on the books, 57% is earmarked for the areas west of the Mississippi and the Middle West.

The backlog recorded for the Middle West doubled between June 1, 1949 and June 1, 1951. In the South, the backlog also doubled—and as a percentage of the national total moved from 11% to 12%. New England, where new contracts have been falling steadily for some years, moved up from 2% of the national total (in 1949) to 5%. Figured on the basis of percentage of national total, the backlog for the Middle Atlantic dwindled percentagewise from 20% to 16%.

• **Peak past?**—Further study of ENR's backlog action indicates that the peak of the industrial boom may have been reached in February of 1951. Since that time, sharp drops have been evident in the monthly rate of new contracts let, and it would appear that a reasonable estimate of business for the second half of the year might be $625 million.

Such an estimate assumes that the rush to get new industrial buildings into construction before materials become too scarce has subsided.

However, even with this conservative estimate for the last half-year's business, total private industrial building work would still reach $3 billion for the year—78% over the $1.68 billion for 1950.

OK $8 billion fast-amortization projects

Including the week of July 6-13, the Defense Production Authority has approved certificates of necessity for fast tax-amortization for projects totalling $8.1 billion, DPA reports.

The program—to expand private industry's productive capacity quickly to meet mobilization needs through permission to amortize an authorized amount of a new facility over a five year period—is seen by observers as a key spur to the current boom in industrial construction.

During the July 6-13 period, a total of 221 certificates were approved, DPA says, for a total value of $395.4 million.

Steel production tops 100% in first six months

Producers of steel in the United States operated at 101.1% of capacity in the first six months of 1951, to produce a record 52,272,943 tons of ingots and castings, the American Iron and Steel Institute said last week.

In the first six months of 1950, the industry operated at 95.7% of capacity, producing 47,174,592 tons of ingots and castings.

Average monthly production for 1951 has been 2,020,601 tons; average for the first six months of 1950 was 1,823,525.

Business briefs . . .

• **Levitt in Penna.?**—William Levitt & Sons, mass-production housing builders of Manhasset, N. Y., said it hasn't yet decided to go ahead, but holds options on nearly 2,000 acres of land near the U. S. Steel Company's new Fairless Works at Morrisville, Pa.

• **Money for machines**—Seventeen western European countries have been authorized to purchase construction machinery to a value of $3,690,000 under purchase approvals by the Economic Cooperation Administration. Biggest share will go to Turkey, which can buy $1,900,000 worth.

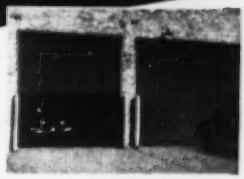
• **Set Idaho rejection rule**—The Idaho State Highway Department will automatically reject bids that exceed the engineers' estimate by more than 10%, according to Earle V. Miller, state highway engineer.

• **$420 million N. Y. school building**—New York City's Board of Education has submitted a new budget that provides for expenditure of $420 million over a five-year period for construction and modernization of schools. Twenty projects—including nine elementary schools and three high schools—will get priority for construction the first year.

• **Clay pipe capacity up**—The vitrified clay pipe industry has expanded its production capacity by 45% since 1946, a survey by the Sanitary Engineering Committee of the National Clay Pipe Association, shows.

• **Steel production high**—For the 20th consecutive week, steelmaking furnaces in the U. S. last week produced more than 2,000,000 tons of steel for ingots and castings, said the American Iron and Steel Institute. Operating rate for the week was 101.9% of capacity.

Fit the closure to the opening with KINNEAR Rolling Doors



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Construction business . . .

UNIT PRICES BID BY CONTRACTORS

Bay St. Louis Bridge in Mississippi

The contract for the construction of a four-lane bridge across the Bay of St. Louis, on the Gulf of Mexico, was awarded to a low bid of $6,061,433.76 by the Mississippi State Highway Comm. Bids were opened June 5.

Merritt-Chapman & Scott Corporation, low bidders, were 6.3% below the engineer's estimate, 6% under the next to low bid, and almost $2 million below high bid.

The trestle-type bridge will measure 10,198 feet long and 63 feet wide and will carry U. S. Highway 90 between the towns of Bay St. Louis and Henderson Point, Miss. (ENR 7/5/51)

Work will begin early next month and be completed in the summer of 1953. The project is approximately 3,000 feet from a railhead. All material will be furnished by the contractor. Wage rates prevailing in the area are: common labor, $0.90; semi-skilled, $1.60; and skilled, $2.15.

Bidders included:

1 Merritt-Chapman & Scott Corp., New York, N. Y. (Contract)	$6,061,433.76
2 Brown & Root Inc., Houston, Tex.	6,454,316.28
4 Massman Constr. & Kansas City Constr. Cos., Kansas City, Mo.	8,042,529.82
Engineer's estimate	6,467,279.75

Items	Quantity	Unit prices 1	C 2
Bridge conc, Cl A	cy	$0,089.8	$67.20	$58.00
Seal concrete	cy	1,260.7	20.00	50.00
Structural steel, bascule & side spans	lb	1,350,000	0.21	0.21
Treated timber	Mbm	28.7	500.00	700.00
Steel grid floor (open)	sf	5,530	5.00	5.00
Rein steel	lb	7,444,642	0.10	0.14
Loose rip rap	T	240	12.00	7.00
Concrete slope paving	cy	220	40.00	40.00
Railing	lf	20,059	9.00	10.00
Test piles, 24" square precast concrete	ea		35,000.00	2,000
18"	ea		4,000.00	2,000
Test piles, untreated timber	ea		2,800.00	2,000
Loading tests	ea	22	1,600	2,500
Treated timber piling	lf	13,600	2.80	5.00
Precast concrete piling, 24" square	lf	142,090	8.30	11.00
18" square	lf	14,430	8.00	9.00
Removal of existing structure	ls	.....	153,500	125,000
Bridge excavation	cy	4,951	2.00	3.00
Cofferdams	ls	.....	167,111	125,000
Counterwgt conc	cy	350	50.00	40.00
Concrete sheet pile (bulkhead)	lf	548	100.00	100.00
Operating machinery	ls	.....	48,700	65,000
Electrical equipment	ls	.....	73,200	75,000
Track, segmental & center lock castings	ls	.....	31,500	28,000
Aux. power & special machinery	ls	.....	14,800	15,000
Operators house, misc	ls	.....	6,000	2,000
Bridge lighting	ls	.....	98,000	65,000

La Guardia Airport runways

Five bids were received May 29 by the Port of New York Authority on raising the top of the dike and rehabilitation work on the runways of La Guardia Airport, New York. The low bid was 1.3% below 2nd bid.

Wage rates in the New York City area are: common, $1.90; semi-skilled, $2.45; skilled, $3.329.

Bidders were:

1 Mac Asphalt Constr. Corp., Flushing, N. Y.	$537,715
2 Tufano Contracting Corp., Flushing	544,650
5 Slattery Contracting Co., Maspeth, N. Y.	838,390

Items	Quantity	Unit prices 1	C 2
Excavation, Cl. A	cy	6,500	$2.00	$1.90
Class B	cy	35,000	0.18	0.37
Dike fill	cy	30,000	0.70	0.38
Reinf conc pipe, 12" dia.	lf	4,300	2.50	2.55
15" dia	lf	2,800	3.00	2.85
Catch basins	ea	14	300.00	185.00
Manholes	ea	5	300.00	250.00
Crushed stone	cy	12,700	4.80	7.00
Asphalt cement	gal	168,500	0.12	0.14
Tack coat	gal	22,500	0.16	0.18
Asphalt concrete binder	T	14,500	9.50	7.90
Asphalt concrete, top course	T	15,000	9.50	8.10
Bit mat 1 for seal coat	gal	43,000	0.13	0.18
Cover aggreg for seal coat	T	1,175	4.00	15.30
Rip-rap	sy	7,500	2.25	1.50
Bit slope protection	sy	11,400	2.25	2.80
Stabilized fill	cy	1,850	2.00	1.75
Asphalt emulsion	gal	54,000	0.13	0.15
Creosted lumber & timber	Mbm	16	300.00	560.00
Corrugated pipe	lf	70	10.00	20.00
Tide gate	ea	1	200.00	250.00
Sluice gate	ea	1	800.00	900.00
Spreading top soil	cy	13,500	0.80	0.55
Seeding	A	25	280.00	625.00
Outshore fill for dike protection	cy	800	2.00	0.80
Raising existing approach lights	ea	3	200.00	50.00
Pump house	ls	.....	4,000	1,500
Raising range lights, furnishing & installing obstruction lights	ls	.....	3,000	500.00

Bulkhead, dike for pier, Long Beach, Calif.

The construction of a bulkhead, dike and fills at Pier E, Long Beach Outer Harbor, Calif., drew 7 bids, 26% apart, which were opened June 26 by the Board of Harbor Commissioners of the City of Long Beach.

The low bid, $199,418, was 10% under the second bid. Chief Harbor Engineer R. R. Shoemaker is engineer on the job.

The city will provide steel sheet piling and armor rock for the rock dike. The work must be completed within the time specified by the contractor. However, in the event of unavailability of material, an extension of time will be granted.

Minimum wage rates, which the city considers to be the prevailing wage rates in Long Beach, are: pile driver man, $2.25-$2.48; common labor, $1.75; operating engineers, $1.93-$2.68; and truck drivers, $1.75-$2.18.

Bidders included:

1 Case-Connelly Co., Compton, Calif.	$199,418
2 United Construction Co., Long Beach, Calif.	222,566
7 Walter C. Groshong, Long Beach	268,896

Items	Quantity	Unit prices 1	2
Pile driving	ea	500	$52.50	$40.00
Rock dike & rock fill	T	14,500	1.75	1.80
Weigh of rock (Location of quarry, Catalina)	lb		145+	155
Earth fill	T	120,000	0.58	0.65
Reinforced concrete deadman	cy	350	25.00	40.00
Pile extensions	pcs	105	10.00	20.00
Tieback system & misc. work	ls	.....	68,643	82,366
Complete work in day	.....		210	180

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager *J. A. MAHONEY, Reports* *M. R. ROESSLER, Statistics*

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

Mass., Norfolk—B.A. 7/30—State, Dpt. P. Health, State House, Boston, H-304, Contr. 2, fdn. and piping for 100,000 gal. steel tank Pondville State Hospital. Plans deposit $10 refundable.

Delaware—B.A. 8/9—State Hy. Dpt., Continental American Bldg., Wilmington, Contr. 9, constr. fenders and repair of damaged granite facing of east tower pier for Delaware Memorial Bridge over Delaware River, near Wilmington. Plans deposit $10. Howard, Needles, Tammen & Bergendoff, 55 Liberty St., New York 5, N. Y., consult. engrs.; adv. ENR 7/19.

BIDS ASKED—BUILDINGS

Mass., Newton—COMMUNITY CENTER—B.A. 7/23—Temple Emanuel, Bldg. Comm., 385 Ward St., Temple Emanuel Center, Community hall, school house addns., alterations. Extended date. CD 7/5.

Mass., Worcester — SCHOOL — B.A. 8/2 — City, School Dpt., Clark St. School. Plans deposit $50 refundable, Perkins & Will, 309 W. Jackson Blvd., Chicago, Ill., consult. archts. CD 8/4/50.

† **Mass., North Attleboro**—BUILDING—B.A. 8/6—U. S. Fish & Wildlife Service, Dpt. Interior, 59 Temple Pl., Boston, Zone 11, service bldg., U. S. Fish Cultural Station, Inv. FWS-1779.

▲ **Mass., Worcester**—SCHOOL—B.A. 8/7—City, School Dpt., City Hall, Chandler Street Junior High School, $1,800,000.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

MAINE—State Hy. Comn., Augusta,

Frank Rossi, RFD 5-A Gardiner, Mass., CA $335,128, bit. macad. road 3.148 mi., F.A. Proj. F 014-1 (1), Bridgton. Bids July 11.

MAINE—State Hy. Comn., Augusta,

Pittsburgh-Des Moines Steel Co., Neville Isle, Pittsburgh, Pa., L. B. $63,850, Brooklyn Bridge, F.A. Secondary Proj. S-0157 (1), Bowdoinham. Bids July 11. CD 7/5.

M. De Mateo Constr. Co., 200 Hancock St., Quincy, Mass. L. B. $444,832., common barrow placement and rip rap, shore protection, SAMB 49, EAST BOSTON, MASS. State, Logan Airport, East Boston, Mass. Bids July 10. CD 7/10.

John McCourt Co., 910 Huntington Ave., Brookline, Mass. LB $367,716. settlement area paving, shoulder grading of runways, SAMB 42, EAST BOSTON, MASS. State, Admin. Bldg., Logan Airport, East Boston, Mass. Bids July 10. CD 6/21.

† **Bayer & Mingalla Constr. Co., Inc.,** 90 Lincoln St., Worcester, Mass. CA $587,684 runway exten. and taxiway Barnes Field, WESTFIELD, MASS. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Awarded July 10. CD 7/11, under LB.

John F. Corcoran Co., 130 Washington St., Hartford, Conn., LB. $141,565. sewage treatment sys., Fairfield State Hospital, E/A A-67, NEWTOWN, CONN. State Dpt. Pub. Wks., Hartford, Conn. Bids July 6. CD 6/21.

▲† **Lane Constr. Corp.,** 37 Colony St., Meriden, Conn. CA $1,000,000. runway exten. alert apron, parking apron and taxiway, Otis Air Force Base, FALMOUTH, MASS. U. S. Eng., 857 Commonwealth Ave., Boston 15, Mass. Awarded July 3. CD 5/29.

Charter Oak Constr. Co., 525 Main St., Hartford, Conn. LB $823,903. Contr. 209, masonry filters and regulator house, filtration plant, West Hartford, HARTFORD, CONN. City, 215 Broad St., Hartford, Conn. Bids July 5. CD 6/22.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Coleman Bros. Corp.,** 40 Central St., Boston, Mass. CA $1,790,000. foundations and related work for HOUSING Proj. PHA 2-20, Columbia Point, Dorchester, BOSTON, MASS. City of Boston Housing Auth., 230 Congress St., Boston, Mass. CD 7/9, under LB.

▲ **Thomas O'Connor & Co., Inc.,** 126 Newberry St., Boston, Mass., CA $2,000,000. NAZARETH HOME for children, Slocum Estate, Pond St., JAMAICA PLAIN (STA. BOSTON), MASS. Archdiocese of Boston, Chancery Office, Lake St., Brighton, Mass. CD 11/1.

Donald D. Snyder & Son, Inc., 36 Comer St., Gardner, Mass. CA $576,070. SCHOOL, LUNENBERG, MASS. Town, Town Hall, Lunenberg, Mass. Awarded July 6. CD 7/5, under LB.

▲ **Platt Constr. Co., Inc.,** 99 First St., Cambridge, Mass. CA $2,943,000. 300 HOUSING units, Proj. PHA 7-3, NEW BEDFORD, MASS. City of New Bedford Housing Auth., New Bedford, Mass. Awarded July 5. CD 7/5, under LB.

▲ **Thompson-Starrett Co., Inc.,** 444 Madison Ave., New York, N. Y. CA $5,044,000. municipal HOSPITAL, Ionia and State Sts., SPRINGFIELD, MASS. City Pub. Welfare Dpt., Springfield, Mass. CD 6/26, under LB.

▲ **Jefferson Constr. Co.,** 75 First St., Cambridge, Mass. CA $1,423,198. 150 HOUSING unit, Proj. PHA 17-1, TAUNTON, MASS. City of Taunton Housing Auth., Taunton, Mass. CD 7/5, under LB.

▲ **Brooklawn Constr. Co.,** 254 Prospect Ave., Hartford, Conn., CA $1,046,000. 8-1 rental HOUSING, Main and Brewer Sts., EAST HARTFORD, CONN. East Hartford Housing Auth., 70 Cannon Rd., East Hartford, Conn. Bids June 12, awarded July 6. CD 6/21, under LB.

Green & Odegard, 119 Ann St., Hartford, Conn., CA. Approx. $200,000. maintenance BUILDING, Willow St., EAST HARTFORD, CONN. Pratt & Whitney Div. of United Aircraft Corp., 400 Main St., Hartford, Conn.

▲ **Anderson Fairoaks Constr. Co.,** 145 S. Marshall St., Hartford, Conn. CA $1,644,000. 160 units HOUSING, PHA 5-2, Yeaton St., NEW BRITAIN, CONN. New Britain Housing Auth., City Hall, New Britain, Conn. Bids June 22. CD 7/6, under LB.

▲ **Fusco-Amatruda Co.,** 59 Amity Rd., New Haven, Conn. LB. $715,000. PHYSICAL EDUCATION, classroom bldg. B/A-R-47A., LB $989,000. administration-classroom and library bldg. B/A-R-47C***Cusano & Ocone, P.O. Box 155, Hamden, Conn. LB. $208,323, boiler house and utilities B/A-R-47B, at State Teachers College, NEW HAVEN, CONN. State Dpt. P. Wks., State Office Bldg., Hartford, Conn. Bids July 6. CD 6/13.

▲ **Fusco-Amatruda CO.,** 59 Amity Rd., New Haven, Conn. CA. $2,199,786, 202 units HOUSING, Conn. 4-6, NEW HAVEN, CONN. New Haven Housing Auth., 200 Orange St., New Haven, Conn. Bids June 29. CD 7/6, under LB.

John Zandonella, 70 Chase St., Bridgeport, Conn. CA. $923,000. Junior HIGH SCHOOL, Strawberry Hill Ave., NORWALK, CONN. City, City Hall, Norwalk, Conn. Bids June 14. CD 6/28, under LB.

▲ **Wm. J. Lyons,** 9 Mechanic St., Norwalk, Conn. LB. $1,500,000. HOSPITAL, 32 Stevens St., NORWALK, CONN. Norwalk Hospital, Norwalk, Conn. Bids July 9. CD 6/22.

▲ **A. E. Stephens Co.,** 1200 Main St., Springfield, Mass., CA $1,331,579, AUDITORIUM, B/A-D-109, University of Connecticut, STORRS, CONN. State, Pub. Wks. Dpt., State Office Bldg., Hartford, Conn. Bids June 1, awarded July 6. CD 6/12, under LB.

▲ **E & F Constr. Co.,** 4 Wells St., Bridgeport, Conn. CA. $1,679,000. Junior HIGH SCHOOL, North End School, STRATFORD, CONN. Town, Municipal Bldg., Stratford, Conn. Bids June 5, awarded July 6. CD 6/21, under LB.

▲ **Harry Maring, Jr., Inc.,** 536 Lindley St., Bridgeport, Conn. CA. $1,548,000. Junior HIGH SCHOOL, South End School, Birdseye St., STRATFORD, CONN. Town, Bd. Educ., Stratford, Conn. Bids June 19, awarded July 10. CD 7/6, under LB.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name in order of Listing)

Water Supply	Latin America
Sewers, Waste Disposal	Public Buildings
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
B.A.	Bids Asked
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

† **Del., Dover**—ALERT HANGAR—B.A. 7/24—U. S. Eng., 121 N. Broad St., Phila. 1, Pa., alert hangar and alert apron and taxiway, Dover Air Force Base, Eng. 36-109-52-3.

Pa., Phila.—B.A. 7/24—Dpt. P. Wks., City Hall Annex, sewers for other than new housing locations, $75,000; sewers for new housing various locations, $75,000. A. Zane Hoffman, ch. engr. CD 1/14/46.

Pa., Phila.—B.A. 7/25—Dpt. P. Wks., City Hall Annex, Queen Lane water works repairs, Approx. $34,000; repairs and replacements in water distr. sys., various locations, Approx. $34,000; water mains Glenfield St. etc., Approx. $34,000. Elbert J. Taylor, water bureau chief. CD 12/24/44.

N. J. Bloomingdale—B.A. 7/26—Roy Mickens, mayor, and Council of Bloomingdale Boro, Bloomingdale, imprv. Main St. from Station 0 plus 00 at road to Butler and extending 2,190 ft. southerly for construction of modified penetration macad. pavement on a macad. base with a conc. type (FABC-1) wearing surf., C. conc. curb, sidewalks, retaining walls, etc. Plans deposit $10. G. Waldo Rude, 30 Colfax Ave., Pompton Lakes, boro engr; adv. ENR 7/19.

N. Y., New York—B.A. 7/31—Bd. Water Supply, 120 Wall St., Zone 15, Contr. 327, furnishing, del. installing, testing, heating, ventilating and appurtenant equip. for the Rondout, West Branch and Kensico, South effluent chambers, heating equip. with appurtenances for the drainage chamber at Shaft 13, the coagulating plant at Shaft 17 and the Kensico comfort station, for performing appurtenant misc., constr., in the Towns of Wawarsing, Ulster Co., Carmel, Putnam Co. and Bedford, North Castle and Mt. Pleasant, Westchester Co. CD 6/16/44.

N. J., Camden—B.A. 8/1—Purch Bd. of City of Camden, at Office Mayor, City Hall, main sewage treatment plant, primary treatment; general construction, Contr. 5; raw sewage pumps, Contr. 5A; electrical work, Contr. 5E; heating and ventilating, Contr. 5H; plumbing, Contr. 5P; structural steel, Contr. 5S. Plans deposit $35. Havens & Emerson, Woolworth Bldg., 233 Broadway, New York, 7, N. Y., engrs. CD 8/13/47.

N. J., Newark—FOUNDATIONS FOR TERMINAL—B.A. 8/1—At office Chief Engineer of The Port of New York Auth., 111 8th Ave., New York Zone 11, install high intensity lighting of Runway 13-31 at LaGuardia Airport; Contr. LGA-220.001. Plans deposit $10.

New York—CAMPS—B.A. 8/2—Palisade Interstate Park Comn., Administration Headquarters, Bear Mountain, N. Y., construct group camps in Twin Lakes sect. of Harriman State Park, Orange Co. Plans deposit $20. CD 5/2/45.

Pa., Catasauqua—B.A. 8/2—Lehigh Co. Court House, Allentown, demolition Pine St. bridge and construct new bridge, approaches thereto leading from Pine St. to Catasauqua to Pine St., Whitehall Twp. Plans deposit $50. G. Edwin Pidcock Co. B & B Bldg., 546-48 Hamilton St., consult. engrs. CD 6/21/46.

N. J., Trenton—B.A. 8/6—Ewing-Lawrence Sewerage Auth., 156 W. State St., Trenton Zone 8, 3,800,000 gal. per day sewage treatment plant, Sect. A, buildings and structures; Sect. B, electrical equipment and wiring; Sect. C heating; Sect. D, plumbing. Plans deposit $50. Buck, Seifert & Jost, 112 E. 19 St., New York, 3, N. Y. consult. engrs. Bid 10/30 bids rejected. CD 12/1/50, under LB.

Md., Baltimore—B.A. 8/8—Bd. Estimates of Mayor and City Council of Baltimore, at office Comptroller, City Hall, Zone 2, constr. Liberty Dam, Gate House, etc. on north branch of Patapsco River approx. 2 mi. northeast of Marriottsville and gate house tower located approx. 1½ mi. upstream from dam at entrance to existing 10 ft. raw water tunnel to Montebello Filtration Plants, for Dpt. P. Wks., Bureau Water Supply. Plans deposit $10; adv. ENR 7/19. CD 2/2.

Pa., Columbia—B.A. 8/9—Columbia Municipal Auth., Boro Hall, Contr. 1, general constr. sewage treatment plant, incl. mechanical work; Contr. 2, plumbing; Contr. 3, heating; Contr. 4, electrical work; Contr. 5, sanitary sewers, appurtenances for approx. 8,000 ft. vitri.-clay pipe and appurtenances. Plans deposit $30. Glace & Glace, 1001 N. Front St., Harrisburg, consult. engrs. CD 4/23.

N. Y., Greenwood Lake—B.A. 8/13—Village Offices, Greenwood Lake, construct Windermere and Linden extens. water mains. Plans deposit $25. Keis & Hofroyd, 257 Broadway, Troy, consult. engrs.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

NEW YORK—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany.

Jess D. Howes, Sidney Center, N. Y. L. B. $116,293, bridge over Otselic River, Route 26 at Cincinnatus, Cortland Co. Bids July 11. CD 6/28.

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany.

Ador & Booth, Watertown, N. Y., L. B., $122,919, resurf. 4.42 mi. Route 6, St. Lawrence Co.

Kenn Constr. Corp., North Tonawanda, N. Y., L. B. $94,595, reconstruct 4.14 mi. Route 5, Herkimer Co.

Luck Bros., Morrisville, N. Y., L.B. $73,727, b. conc. resurf. 3.95 mi. Route 22, Clinton Co.

Madison Co. Constr. Co., Inc., Madison, N. Y., L. B. $251,069, reconstruct 1.61 mi. Route 32, near Schuylerville, Saratoga Co.

Mid State Builders, Inc., 622 South St., Utica, N. Y., L. B. $70,789, resurf. 3.26 mi. Route 5-S, Montgomery Co.

Binghamton Constr. Co., Inc., Marine Midland Bldg., Binghamton, N. Y., L. B. $118,703, bit. macad. resurf. 3.6 mi. Sect. Route 97, Sullivan Co.

Bruno J. Caradon Constr. Co., Lancaster, N. Y., L. B. $183,795, widn., resurf. 11.05 mi. Route 33 between Batavia and Bergen, Genesee Co.

Northampton Constr. Corp., Westhampton Beach, N. Y., L. B. $373,261, completion final link connecting Long Island Parkway Sys., Suffolk Co.

Fitzgerald Bros. Constr. Co., Inc., Troy, N. Y., L. B. $134,906, resurf. 7.12 mi. Route 67 between Valley Falls and Buskirk, Rensselaer Co.

W. H. Greene, Grand Blvd., Westbury, N. Y., L. B. $129,688, reconstruct 0.58 mi. Route 110, village of Amityville, Suffolk Co. Bids 7/11. CD 6/28.

▲† **Fred J. Brotherton, Inc.**, 185 Atlantic St., Hackensack, N. J., L.B. $1,067,836, 2 hangars, roads, taxi-ways, FORT DIX, N. J. Dpt. Army, 121 N. Broad St., Phila., Pa.

▲† **Edward H. Ellis & Sons**, Route 40 and Harvard Ave., Merchantville, N. J., L.B. $1,440,502, McGuire Air Force Base, roads, sewers, electric power distr., FORT DIX, N. J. Dpt. Army, 121 N. Broad St., Phila., Pa.

▲† **H. R. Miller Co.**, Box 1235, Lancaster, Pa., L.B. $1,438,210, runway extens., NOY 23190, JOHNSVILLE, PA. Dpt. Navy, Phila. Naval Base, Phila., Pa. CD 10-11-50.

▲ **Baton Constr. Co.**, 1717 Sansom St., Phila., Pa. C.A. $2,832,600, water filtration plant, WILMINGTON, DEL. Wilmington Bd. Water Comrs., 16 and Market Sts., Wilmington, Del. NPA approval granted. CD 4/4, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **John W. Harris Assoc., Inc.**, 30 Rockefeller Plaza, New York 20, N. Y., CA. Approx. $2,000,000. mfg. PLANT for aeronautical accessories, BAY SHORE, N. Y. Fairchild Engine & Airplane Corp., Stratos Div., Farmingdale, N. Y. Fordyce & Hamby, 29 W. 57 St., New York, N. Y. archts., Guy B. Panero, 420 Lexington Ave., New York 17, N. Y., structural engr. CD 2/7, under Farmingdale, N. Y.

George K. Heebner, Inc., 1231 Vine St., Phila., Pa., CA. $150,000. 1 and 2 story, 20x122 ft., brick, concrete masonry FACTORY, BETHAYRES, PA. Quaker City Gear Works, Inc., 1910 N. Front St., Phila., Pa. Bids June 9. CD 6/7.

Macca Corp., 2586 Radcliffe Rd., Broomall, Pa., Separate Contracts. Approx. $300,000. RESIDENTIAL DEVELOPMENT Sproul Rd., BRYN MAWR, PA. Carl J. Johnson, 853 North Ave., Springfield, Pa., archt.

McCloskey & Co., 1620 W. Thompson St., Phila., Pa., CA. $300,000. CONVENT bldg. annex, BRYN MAWR, PA. Assumption Convent, c/o Peter F. Getz, archt., 32 Bryan St., Havertown, Pa., archts.

▲ **Psaty & Fuhrman, Inc.**, 369 Lexington Ave., New York, N. Y. LB. $2,563,000. HOUSING, 9 and Tilghman Sts., CHESTER, PA. Chester Housing Auth., Commonwealth Bldg., Chester, Pa. Bids June 25. CD 6/12.

George K. Garrett Co., Inc., D and Tioga Sts., Phila., Pa. Separate Contracts. $200,000. 1 story, 100x300 ft. concrete PLANT addn., ELLWOOD CITY, PA. Max Haupt, 138 S. 9 St., Phila., Pa., engr.

Cavalieri Constr. Co., 8049 Frontenac St., Phila., Pa., Separate Contracts. $300,000. RESIDENTIAL DEVELOPMENT, Poplar St., etc. FEASTERVILLE, PA.

Wackes & MacCullock, Hatboro, Pa., Separate Contracts, $300,000. RESIDENTIAL DEVELOPMENT, Limekiln Pike, etc., NORTH HILLS, PA.

Henry Berman, 6032 Market St., Phila., Separate Contracts. $570,000. RESIDENTIAL DEVELOPMENT, Bristol St., etc., PHILA., PA.

B. Bernstein & Son, 2027 Arch St., Phila., Pa., CA. $82,000. 2 story masonry LAUNDRY addn., PHILA., PA. Penna Laundry Co., 321 N. 32 St., Phila., Pa. I. Demchick, 246 S. 15 St., Phila., Pa., archt.

Lauter Constr. Co., 112 S. 16 St., Phila., Pa., CA. $82,000. 1 story 51x191 ft., masonry WAREHOUSE, PHILA., PA. Hill-Chase & Co., Inc., Trenton Ave. and Ontario St., Phila., Pa. Howard Carter Hill, 200 S. Elmwood Ave., Glenolden, Pa., archt.

▲† **Arthur Venneri Co.**, 300 North Ave., East Westfield, N. J., LB. $695,000. HOSPITAL area and misc. bldgs. rehabilitation, CAMP KILMER, N. J. U. S. Eng., 121 N. Broad St., Phila., Pa. Bids June 28.

▲ **Owner**, c/o Dante D'Anastasio, archt., 1815 Federal St., Camden, N. J. Separate Contracts. Approx. $1,800,000. RESIDENTIAL DEVELOPMENT, Deptford Twp., Murfville Rd., MURFVILLE, N. J.

▲ **Gumina Building & Const. Co.**, Foot of Talmage St., New Brunswick, N. J., CA. $1,638,225. HOUSING project, Mellon and Oakland Sts., TRENTON, N. J., Trenton Housing Auth., 875 N. Willow St., Trenton, N. J. Bids June 21. CD 6/21.

▲ **W. A. Clarke Jr.**, 126 Signal Rd., Drexel Hill, Pa., Separate Contracts. $1,800,000. RESIDENTIAL DEVELOPMENT, MacDade Blvd. and Millmount Ave., RIDLEY PARK, PA. Charles T. Okie, Darby Rd., Devon, Pa., archt.

▲† **Ajax Constr. Co.**, 925 15 St. N.W., Wash., D. C. CA. $5,933,000. BARRACKS and MESS HALL BLDGS., ANDREWS FIELD, MD. U. S. Eng., First and Douglas Sts. N.W., Wash., D. C. Bids June 26.

▲ † **Day & Zimmerman**, 1700 Walnut St., Phila., Pa. CA $8,195,700. modern propellant production facilities at Naval Powder FACTORY, INDIAN HEAD, MD. Dpt. Navy, Pub. Wks. Officer, Naval Gun Factory, Wash. 25, D. C.

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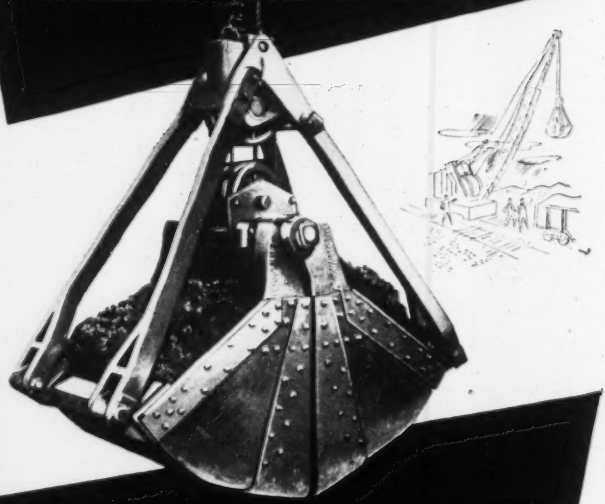

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145

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

N. C., Wilmington—B.A. 7/31—City Council, City Hall, construct McCumber's Ditch storm drain outfall, Proj. DRA-B-S-51-1-51. Plans deposit $15. Robert E. Coleman, Jr., city engr. adv. ENR 7/26. CD 4/8/46.

La., Lake Charles—B.A. 8/1—City, City Hall, 31,567 sq. yd. concrete street pavement, 62,984 sq. ft. concrete sidewalks. Extended date. CD 6/21.

† **Fla., Cocoa**—WAREHOUSE—B.A. 8/2—U. S. Eng., 375 Riverside Ave., Jacksonville, supply warehouse, rehabilitation existing Warehouse 330, Patrick Air Force Base. Eng. 08-123-52-5. CD 7/12.

† **Miss., Biloxi**—STATION—B.A. 8/2—U. S. Eng., P. O. Box 1169, 2301 Grant St., Mobile 7, Ala., Gulf Coast Loran Station at Cadet Point near Keesler Air Force Base, Eng. 01-076-52-6. CD 2/7.

† **Kentucky**—B.A. 8/7—U. S. Eng., 830 W. Broadway, Louisville, Zone 3, construct pumping plant structure, concrete substructure, brick superstructure walls, etc.; discharge pipe lines 6 and 24 in.; misc. piping and valves; pumping equip. incl. 2 storm water pumps, one sewage pump with electrical control equip.; one 225 kva transformer sub-station, Serial No. CIV-ENG 15-029-52-2. Plans deposit $15. CD 6/12, under LB.

BIDS ASKED—BUILDINGS

N. C., Asheville—HOSPITAL—B.A. 7/31—Memorial Mission Hospital, Woodfin St., 200-bed hospital. Extended date. Six Associates, Inc., 1095 Hendersonville Rd., archts. CD 5/24.

La., New Orleans—CHURCH—B.A. About 8/1—St. James Major Church, Gentilly Blvd. between Franklin Ave. and Wisteria St., church. $300,000. Wm. R. Burk, Pan American Bldg., archt. CD 9/22.

Tenn., Erwin—HOSPITAL—B.A. About 8/1—Unicoi Co. hospital. Approx. $300,000. Beaumann & Beaumann, 813½ Market St., Knoxville, archts.

Va., Richmond—DENTISTRY SCHOOL—B.A. 8/1—Baskervill & Son, archts., 2313 W. Cary St., Richmond, Va., construct School of Dentistry at Medical College of Virginia, for State of Virginia, Richmond, Va. $750,000. CD 10/8/45.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Wm. H. White Jr. & Co., 3321 North Boulevard, Richmond, Va., CA. Approx. $338,000. rehabilitation steam distr. lines at Norfolk Naval Base, NORFOLK, VA. Pub. Wks. Office, Headquarters, Fifth Naval Dist., U. S. Naval Base, Norfolk 11, Va. Bids June 28, awarded July 1. CD 6/19.

▲† **Duval Eng. & Constr. Co.**, foot of E. Adams St., Jacksonville, Fla., CA, $1,931,703, extension of runways at Naval Air Station, JACKSONVILLE, FLA. Sixth Naval Dist., Charleston, S. C. CD 7/5, under LB.

† **R. E. Clarson Rube, Inc.**, 2000 13 Ave. N., St. Petersburg, Fla., CA $61,847. base communication bldg., MacDill Air Force Base, TAMPA, FLA. U. S. Eng., 575 Riverside Ave., Jacksonville, Fla. CD 2/20/50.

LOUISIANA—State Hy. Dpt., Highway Office Bldg., Baton Rouge,

T. L. James & Co., Inc., Rouston, La. LB $557,240. grading, bridges 6.9 mi., Kaplan Crowley Hy., State Rte. 26, S.P. 57-01-04, F. A. Proj. S 145 (2), Vermillion Parish.

Forcum-James Co., 1565 Choctaw Drive, Baton Rouge, La. LB $283,856. grading, aggregate surf. reinf. con. span bridge 7,799 mi., Pecan Island-Forked Island Hy., State Rte. 26, S.P. 207-01-08. Vermillion Parish. Bids July 11. CD 6/25.

LOUISIANA—State Hy Dpt., State Highway Office, Baton Rouge,

A. P. Johnston, Florida St., Baton Rouge, La. LB $87,926. nine 20 ft. concrete slab bridge, b. conc. approaches, timber trestle span bridge, 0.109 mi. Bayou Rapides Boeuf Diversion Channel bridges, State Rtes. 205 and 278. Proj. S.P. 14-06-11, 368-03-08. Rapides Parish.

T. L. James & Co., Inc., Ruston, La. LB $498,956. four 20 ft. concrete slab span bridge, grading 6.245 mi., Bourg-Montegut Hy., State Rte. 69, Proj. S.P. 65-03-15, 248-03-04, F. A. Proj. S 381 (3), Terrebonne Parish.

W. R. Fairchild Constr. Co., Hattisburg, La. LB $80,951. timber bridges, steel surf. course, welded steel pontoon barge 84x24x7 ft. power unit 0.046 mi., Pontoon Bridge over Bayou Lafourche at Cote Blanche Proj. S.P. 713-00-86, Lafourche Parish. Bids July 11. CD 6/20 and 6/23.

† **Union Constr. Co.**, 2634 Almonaster St., New Orleans, La. LB $295,945. reinstallation BUILDINGS 154, 158, 211, 241 and 287, NEW ORLEANS, LA. Officer in Charge of Constr. Bldg. 16, Naval Air Station, New Orleans, La.

† **Codell Constr. Co.**, Winchester, Ky. LB $237,663. hard stand paving for Lexington Signal Depot, LEXINGTON, KY. U. S. Eng., 830 W. Broadway, Louisville 3, Ky. Bids June 22. CD 6/6.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Margolin Bros. Supply Co.**, 1028 N. Hollywood St., Memphis, Tenn., CA. Approx. $3,986,777. 540 HOUSING units for enlisted men at Naval Air Technical Training Station for Dpt. of Navy, MILLINGTON, TENN. Shelby Constr. Co. (sponsor) Shrine Bldg., Memphis, Tenn. CD 6/21, under CA.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

† **Ill., Danville**—B.A. 8/7—Veterans Admin. Munitions Bldg., Wash. 25, D. C. Incinerator Bldg. 90, approx. 9,000 cu. ft. for Veterans Admin. Hospital, Spec. No. 51141, Proj. No. 7-4106.

BIDS ASKED—BUILDINGS

Ill., Chicago—SCHOOL, CONVENT—B.A. 7/24—St. Robert Bellarmine Parish, Meade Ave., and Eastwood St., Zone 30, brick, concrete, stone trim school addn. and convent. $350,000. Eco J. Bello, 8 S. Dearborn St., Chicago Zone 3, engr. CD 7/9.

O., Woodville—SCHOOL—B. A. 7/31—Bd. Educ., 2 story, bsmt. SCHOOL addn. with gymnasium-auditorium, etc. $400,000. Plans deposit $15. Britsch & Munger, 531 Nicholas Bldg., Toledo, archts. CD 4/2.

Wis., Wilmot—SCHOOL—B.A. 7/31—Union Free High School Dist., Wilmot, high school addns., alterations $400,000. Plans deposit $25. Boyum, Schubert & Sorenson, Hoeschler Bldg., La Crosse, archts. CD 3/27.

O., Alliance—PASSENGER AND FREIGHT STATION—B.A. About 8/1—Pennsylvania R. R., J. L. Gressitt, ch. engr., Broad St. Station Bldg., 1617 Pennsylvania Blvd., Phila. 4, Pa., passenger and freight station. $200,000.

Mich., Tawas City—HOSPITAL—B. A. 8/2—Tawas Hospital, Judge Reed Smith, secy., Tawas Hospital Assoc., Tawas City, brick, concrete, 50-bed capacity hospital. Approx. $300,000. Fred E. Wigen, 507 Weichmann Bldg., Saginaw, archt. CD 3/12.

O., McDonald—STADIUM—B.A. 8/2—Bd. Educ., J. Johnson, clk., High School, McDonald, stadium on athletic field west of high school. M. Gilbert Miller, 12 W. Madison St., Youngstown, Zone 4, archt.

Ill., Madison—HOUSING—B.A. 8/6—Madison County Housing Auth., D. F. Braner, exec. dir., 3 and Haller Sts., East Alton, Proj. 15-3, consisting 13 buildings, total 84-units, concrete, brick, frame etc. $800,000-$900,000. Friedman, Alschuler & Sincere and Ernest A. Grunsfeld Associated Architects & Engineers, 223 W. Jackson Blvd., Chicago, Zone 6, archts. CD 6/11.

O., Parma—HIGH SCHOOL—B. A. 8/7—Bd. Educ., 5401 W. 54 St., Parma Senior High School, W. 54 St. and Longwood Ave. Plans deposit $250 general constr., $150 each for heating and ventilating, plumbing and electrical work. Fulton, Krinsky & Dela Motte, 6015 Euclid St., Cleveland, archts. CD 3/12.

Ill., Aurora—SCHOOL—B.A. 8/8—School Dist. 131, 56 Jackson St., Dieterich School addn., $300,000. J. C. Llewellyn, 38 S. Dearborn St., Chicago Zone 3, archt. CD 7/9.

Wis., Green Bay—GARAGE—B.A. About 8/15—City, garage. $250,000. F. Euclide, city engr. CD 7/19/45.

O., Hubbard—SCHOOL—B.A. 8/18—Bd. Educ., Hubbard school. Bids July 18 rejected. CD 5/29.

▲ **Ill., Venice**—HOUSING—B.A. 8/20—Madison County Housing Auth., D. F. Braner, exec. dir., 3 and Haller Sts., East Alton, Project 15-7, 18 bldgs. total 100 units, 1 story management and maintenance bldg. $1,000,000. Friedman, Alschuler & Sincere, and Ernest A. Grunsfeld Associated Architects & Engineers, 223 W. Jackson Blvd., Chicago 6, Ill., archts.

▲ **Ill., Alton**—HOUSING—B.A. 9/9—Madison County Housing Auth., D. F. Braner, exec. dir., 3 and Haller Sts., East Alton, Project 15-4, 75 bldg., incl. 150 units, 1 story management and maintenance bldg., etc. $1,500,000. Friedman, Alschuler & Sincere and Ernest A. Grunsfeld Associated Architect & Engineers, 223 W. Jackson Blvd., Chicago, Zone 6, archts. CD 3/27.

Ill., Evanston—APARTMENT—Bids Asked—Park Ridge Building Corp., c/o Mark D. Kalischer, archt., 230 E. Ohio St., Chicago, Zone 11, apartment, Austin and Ridge Ave. $300,000.

SOON LETS CONTRACT—BUILDINGS

O., Delaware—GYMNASIUM, etc.—Ohio Wesleyan University, Admin. Bldg., soon lets contract 70x200 ft., brick, block, structural steel gymnasium, natorium bldg. $300,000. Rollin L. Rosser, 410 W. 1 St., Dayton, archt. Bids May 25, rejected. CD 5/24.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Indiana—State Hy. Comn., Samuel C. Hadden, chr., State House Annex, Indianapolis, Zone 4.

Calumet Paving Co., Zionsville, Ind. CA. $517,807, est. $555,967. c. conc. 3.75 mi. State Rd. 100 from U. S. 40 to State Rd. 67. Contr. 3353. Marion Co. Bids May 1. Awarded June 25. CD 5/7, under LB.

Indiana—State Hy. Comn., Samuel C. Hadden, ch., State House Annex, Indianapolis, Zone 4.

Ralph Rogers & Co. Inc., Bloomington, Ind. CA. $504,725, est. $509,032, c. conc. widen., bit. resurf. 20.7 mi. State Rd. 37 Bedford to Bloomington, Contr. RS-3349. Lawrence and Monroe Counties. Bids May 22, awarded June 30. CD 5/28, under LB.

† **Dpt. Air Force**, Pentagon Bldg., Wash., D. C., rejected bids paving, runways, alert apron, parking apron O'Hare Field, CHICAGO, ILL. CD 7/10, under LB.

† **Lloyd Bros.**, 444 Walnut St., Wood Dale, Ill., LB. $195,000. public works bldg. addn. and paving, Glenview Naval Air Station, GLENVIEW, ILL. Dpt. Navy, Ninth Naval Dist., Great Lakes, Ill. CD 5/1.

† **Natkin & Co.**, 1601 S. Hanley St., St. Louis, Mo., LB. $371,000 aircraft fueling sys., water lines, SCOTT AIR FORCE BASE, ILL. Dpt. Air Force, The Pentagon, Wash., D. C.

WISCONSIN—State Hy. Comn., Madison, Wis.

Streu Constr. Co., Two River, Wis., LB. $94,802, c. conc. 0.877 mi. The Waldo-Sheboygan Falls Rd., S. T. Hy. 28, Proj. T 070-1-11, Sheboygan Co.

Joe Jaeger Excavating Co., West Bend, Wis., LB. $62,793, base course 1.752 mi. The Eau Claire-C. T. H. "P" Rd., C. T. Hy. "Q" Proj. S 0150 (3), Eau Claire Co. Bids July 10. CD 6/20.

Jos. D. Bonness Inc., 1409 N. 27 St., Milwaukee, 8, Wis., LB. $528,980, grading, draining, paving and etc. at General Mitchell Field, MILWAUKEE, WIS. Milwaukee Co. Court House, Milwaukee, Wis. Bids July 12. CD 7/6.

T. F. Scholes, Inc. of Ohio, 1214 Cherry St., Toledo, O. $70,000. install railroad trackage facilities, PONTIAC, MICH. Pontiac Div. of General Motors Corp., Pontiac, Mich.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Knowlton Constr. Co.**, 106 N. Main St., Bellefontaine, O. LB. $1,085,700. est. $786,000. general constr. STUDENT CENTER at Ohio University, ATHENS, O. Dpt. P. Wks., State Office Bldg., Columbus, O. Bids July 6. CD 6/20.

† **Henry A. Justus**, 4049 E. Livingston Ave., Columbus, O. CA. $107,000. FIRE HOUSE BLDG. 9 addn., warehouse bldg. and reroofing, COLUMBUS, O. Dpt. Navy, Phila. Naval Base, Phila., Pa., and Naval Air Base Port, Columbus, O.

F. M. Minnigan, 16 Bates St., Dayton, O. CA. $354,000, est. $400,000. 2 story bsmnt., 95x103 ft., brick HIGH SCHOOL addn. OAKWOOD, O. Van Buren Twp. Bd. Educ., Oakwood, O. Rial T. Parrish, 945 U. B. Bldg., Dayton, O., engr. and archt. CD 11/22/48.

▲ **Walter J. Urban Co.**, 618 Jefferson St., Toledo, O. Owner Builds. 142 single-family frame HOUSES on Whittlesey Ave. across from Collins Park, East TOLEDO, O.

▲ **E. Mast & Sons**, 1000 Greenwood St., Zanesville, O., CA. $1,274,002, Senior HIGH SCHOOL, ZANESVILLE, O. Bd. Educ., Zanesville, O. Awarded July 11. CD 7/2, under LB.

Bedford Constr. Co., 201 N. Wells St., Chicago 6, Ill. CA. $200,000. PROCESS bldg., ARGO, ILL. Corn Products Refining Co., Archer at I.H.B. R.R., Argo, Ill. Awarded July 5.

▲ **Kuchard & Assoc.**, 221 Jewett Bldg., Des Moines, Ia. CA. $1,875,630. construct HOUSING, Projects LaSalle 14-4 and 14-7; Marseilles, Ill., 14-6; Streator Ill. 14-9 and Oglesby, Ill. 14-2, LASALLE, ILL. LaSalle Housing Auth., Ottowa, Ill. Bids June 20. CD 7/3, under LB.

Lloyd Builders, Inc., 61 W. Superior St., Chicago 10, Ill. CA. $894,000. 100 unit HOUSING, Project Ill. 40-1, LINCOLN, ILL. Logan Co. Housing Auth., Lincoln, Ill. Bids June 28. CD 6/28, under LB.

Kuchard & Assoc., 221 Jewett Bldg., Des Moines, Ia. CA. $963,870. HOUSING, Project Rock Island, Ill. 28-2, ROCK ISLAND, ILL. Rock Island Housing Auth., Rock island, Ill. CD 7/6, under LB.

Badger State Constr. Co., and **R.-W. Constr. Co.**, 4831 W. State St., Milwaukee, 8, Wis., and Merritt-Chapman & Scott Corp., Standard Bldg., Cleveland, Ohio, CA, dock and dredging at power plant, MILWAUKEE, WIS. Wisconsin Electric Power Co., 231 W. Michigan St., Milwaukee, 3, Wis. Bids May 18. CD 5/14.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

† **Colorado**—VALVES, etc.—B.A. 7/31—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, furnishing, del. f.o.b. cars shipping point or f.o.b. Loveland, butterfly valve control sys., and accessories for pump-turbine bypass, Sec. DS-3474; furnishing del. f.o.b. cars shipping point or f.o.b. Campion, valves for penstock intake both at Flatiron Power and Pumping Plant, Colorado-Big Thompson Proj. Spec. DS-3475. L. N. McClellan, ch. engr.

† **Minn., Duluth**—HEATING PLANT—B.A. 7/31— U. S. Eng., 1709 Jackson St., Omaha, Neb. central heating plant, Duluth Air Force Base, Inv. 52-1 (SP).

† **South Dakota** — SUB-STATION — B.A. 7/31 — Bureau Reclamation, Dpt. Interior, Huron, construct Woonsocket sub-station, Transmission Div., Missouri River Basin Proj., approx. 3 mi. west of Woonsocket, Spec. No. DC 3481.

▲ **Tex., Waco**—COLISEUM, etc. B.A. 7/31—McLennan Co. c/o Court House, Program 1, 750 seating capacity coliseum, $450,000; Program 2, 4-H bldg. and dining hall, $300,000; Program, 3, agricultural exhibit bldgs., $425,000. Plans deposit $25 each, Broad & Nelson, 505 N. Erway St., Dallas and Harris H. Roberts, 1103 Medical Arts Bldg., Dallas, archts., Ziegler & Housman & Assoc., 1900 N. St. Paul St., Dallas, engrs. CD 4/18 under LB.

† **Colorado**—B.A. 8/2 Bureau Reclamation, Dpt. Interior Bldg. 1-A, Denver Federal Center, Denver, Colo., one lot of trash-racks for intake structure of outlet works at Willow Creek Dam, Colorado-Big Thompson Proj. Spec. DS-3484.

Ia., Cedar Rapids—B.A. 8/2—City, sanitary sewers, $65,000, H. R. Green Co., 417 1 Ave. S. E., engrs.

Neb., Omaha—B.A. 8/6—Douglas Co., Omaha, repaved road 48 from Hy. 8 to Hy. 36. $60,000. Wm. Green, co. engr. CD 5/10.

† **Colorado**—B.A. 8/7—Bureau Reclamation, Dpt. Interior, Bldg 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Loveland, one control for four 3x3 ft. outlet gates, incl. cabinet, cabinet piping, auxiliary equip. and electric equip for Carter Lake Reservoir, Colorado Big Thompson Proj., Inv. No. DS 3485.

† **Colorado**—B.A. 8/7—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Loveland, one lot of trashracks and stop log slot cover; surge tank metalwork for Bald Mountain Pressure Tunnel, Estes Park-Foothills Power Aqueduct, Colorado-Big Thompson Proj. Inv. No. DS-3486.

† **Ia., Knoxville**—B.A. 8/7—Veterans Admin., Vermont Ave between H and I Sts. N. W., Wash. 25, D. C., 9,000 cu. ft. Incinerator Bldg. 121 for Veterans Admin. Hospital, Spec. 51134, Proj. 8-4132.

† **Montana**—B.A. 8/9—Bureau Reclamation, Dpt. Interior, Hungry Horse Govt. Camp, Columbia Falls, constr. Betty Creek Work Center, approx. 27 mi. southeast of Columbia Falls, Hungry Horse Proj., Spec. 1002-132.

† **Colorado**—B.A. 8/9—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Loveland, one fixed-wheel gate hoist with indicator, controls and float switch for the penstock inlet of Polehill Power Plant, Colorado-Big Thompson Proj. Inv. No. DS-3490.

South Dakota—OIL STORAGE TANKS—B.A. 8/9—Bureau Reclamation Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing del. f.o.b. cars shipping point or f.o.b. cars at Huron, Sioux Falls and Watertown, 6 horizontal 12,000 gal. trans-

former oil storage tanks of welded plate steel for Huron, Sioux Falls and Watertown sub-stations, Transmission Div., Missouri River Basin Proj., Inv. No. DS-3488.

Tex., Fort Worth—B.A. 8/9—City, c/o W. O. Jones, mgr., filter plant bldg., 32 m.g.d. capacity, install equip. at Holly Water Plant. $500,000. Plans deposit $25. Freese & Nichols, 407 Danciger Bldg., engrs. CD 5/14.

† **Colorado**—B.A. 8/14—Bureau Reclamation, Dpt. Interior, Bldg 1-A, Denver Federal Center, Denver, furnishing, del. f.o.b. cars shipping point of f.o.b. cars Granby, sub-station, transformer, distribution board for Willow Creek Pumping Plant, Colorado-Big Thompson Proj., Spec. CD-3477. L. N. McClellan, ch. engr.

Minn., Albert Lea—B.A. 8/15—City, W. C. Hyde, mgr., Proj. 1, labor and materials for complete sewage treatment plant, 335 lin. ft. 36 in. rein.-con. sanitary sewers, Proj. II, 4,000 lin. ft. 24 and 30 in. rein.-con. sanitary sewers, etc. $919,000. Plans deposit Proj. I $40, Proj. II $10. CD 8/12/49.

▲† **Tex., Kelley Air Force Base**—HEADQUARTERS BLDG., etc.—B.A. 8/17—U. S. Eng., 606 Santa Fe Bldg., Galveston, 2½ story 313,000 sq. ft. masonry headquarters bldg. for U. S. A. F. security service, summer-winter air conditioning. Inv. No. Eng. 41-243-52-1. $5,250,000. Phelps & De-Wees & Simmons, 2501 Majestic Bldg., San Antonio, archts.; Mather & Kenan, Transit Tower Bldg., B. M. Baker, Majestic Bldg., J. W. Baretta Engineers, Inc., Travis Bldg., Wm P. T. Drought, 117 W. Pecan St., All San Antonio, engrs.; storm sewers, drainage 60,000; sanitary sewers, $60,000; water lines, facilities, $40,000; CD 4/19.

Tex., Fort Worth—SCHOOL—B.A. 9/18—Common Consolidated School Dist. 37, c/o C. F. Brewer, supt., Fort Worth 2 story brick, tile high school for White Settlement Village, Cherry Lane, Approx. $600,000. Plans deposit $25. A. B. Withers & Paul T. Cahill, 353 Insurance Bldg., archts. CD 5/9.

† **Arkansas**—B.A. 8/21—U. S. Eng., 300 Broadway, Little Rock, complete power house and switchyard at Bull Shoals Dam, Mountain Home, CIVENG 03-050-62-1.

† **Colorado**—TRANSFORMERS, LIGHTNING ARRESTERS—B.A. 8/21—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.p.b. cars Brush, outdoor power transformers; outdoor lightning arresters, for the Beaver Creek sub-station, Colorado-Big Thompson Proj., Inv. No. DS-3489.

† **Wyoming**—TRANSFORMERS—B.A. 8/21—Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo., two 27,500/ 22,875 kva power transformers, two 115,000 volt power circuit breakers, two 115,000 volt horn-gap switches and two 115,000 volt disconnecting switches for Alcova switchyard, kendrick Proj., Spec. DS 3491, L. N. McClellan, Bldg. 1A, Denver Federal Center, Denver, Colo., ch. engr.

† **Tex., Amarillo**—B.A. 8/30—U. S. Atomic Energy Comm., contract Div., Los Alamos, N. M., Proj. A, rehabilitation 21 mi. roads, $150,000; Proj. B, rehabilitation 3 parking areas, $70,000; Proj. c 9½ mi. new road constr., in Pantex Ordnance Plant area, $120,000; Contr. D, construct 2 parking areas $75,000. Inv. No. 291-52-4. CD 4/19.

Kansas—RURAL DISTRIBUTION LINES—B.A. in September—Radiant Electric Co-operative, Fredonia, 75 mi. rural distr. lines, in Wilson Co. Flora Eng. Co., 1717 E. Colfax Ave., Denver, Colo., engr. CD 6/13.

BIDS ASKED—BUILDINGS

▲ **N. M., Albuquerque**—PHYSICS, METEORITICS, etc.—B.A. 7/31—State Purch. Agent Office, Capitol Bldg., Santa Fe, precast hollow concrete block physics and meteoritics bldg., $123,710; precast hollow concrete block College of Law, $238,500; precast hollow concrete block chemistry bldg., $427,711; biology bldg., $433,250 at University of New Mexico, for Board of Regents University of New Mexico, Albuquerque. Plans deposit $25 each. Meem, Zehner, Holien & Assoc., Box 628, Santa Fe, archts.

Minn., Grand Meadow—SCHOOL—B.A. 8/2—Bd. Educ., R. W. Dorsett, mgr., 2 story, 67x111 ft. grade school, $350,000. Plans deposit $25. Ellerbe & Co., E. 505 First National Bank Bldg., St. Paul, archts.

▲ **Kan., Wichita**—SCHOOL—B.A. 8/6—Bd. Educ., Wichita, Charles Curtis School. $1,100,000. Hibbs & Robinson, 519 S. Broadway, archts. Extended date. CD 6/19.

Minn., Rochester—SCHOOL—B.A. 8/7—Bd. Educ., 1 story school, $400,000. Dimond, Haastick & Lundgren, 416 Endicott Bldg., St. Paul, archts. CD 4/26.

▲ **N. M., Albuquerque**—HOSPITAL—B.A. 8/7—Bd. Comrs. Bernalillo County Albuquerque, 152 bed concrete masonry, structural steel County Indian Hospital, with administration and out-patient facilities, kitchen, laundry, $2,500,000. Plans deposit $50. Ferguson, Stevens & Beck, 111 S. Amherst St., archts. CD 12/13/49.

Ia., Davenport—WAREHOUSE—B.A. 8/15—Omar, Inc., 1910 Harney St., Omaha, Neb., branch warehouse, wholesale baking business. $100,000. A. B. Corn, owner's engr. CD 11/2.

Kan., El Dorado—HOSPITAL—B.A. 8/15—Susan B. Allen Memorial Hospital, El Dorado, hospital addn. $680,000. Jamieson & Spearl, 1696 Arcade Bldg., 612 Olive St., St. Louis 2, Mo., archts. CD 6/12.

Tex., Lubbock—CHURCH—B.A. 8/15—First Methodist Church, c/o pastor, Lubbock, brick, stone church, incl. sanctuary, chapel and tower, $600,000. Plans deposit $50. Wyatt C. Hedrick Co., 1005 First Natl. Bank Bldg., Fort Worth, archt. CD 12/11/50.

▲ **Ark., Little Rock**—HOSPITAL—B.A. 8/16—University of Arkansas School of Medicine, Little Rock, 400-bed teaching hospital. Plans deposit $100. Extended date. Erhart, Eichenbaum & Rauch, Wallace Bldg., Little Rock, Ark., archts. CD 5/22.

Tex., Waco—HOUSING—B.A. About 8/10—U.S. Eng., 606 Santa Fe Bldg., Galveston, construct, manage, finance, 140 two-bedroom duplexes; 75 three-bedroom duplexes, one 2-bedroom single unit; 68 three-bedroom single units; one 4-bedroom single unit, at Connally Air Force Base, Inv. No. Eng. 41-243-52-10. Plans deposit $50. CD 6/4.

Minn., Windom—POWER PLANT—B.A. 8/27—City, furnish erect steam generating unit in municipal power plant, $125,000. Plans deposit $35. Pfeifer & Shultz, 702 Wesley Temple Bldg., Minneapolis, engrs.

▲ **Minn., Minneapolis**—MEDICAL CENTER—B.A. 8/24—Regents of University of Minnesota, R. S. Cutlaway, purch. agt., 323 Administration Bldg., Main Campus Minneapolis, construct at Mayo Memorial Medical Center, incl. 24 story tower, 6 story wing and 2 story auditorium and a 2 level underground garage, $9,500,000. Plans deposit $200. C. H. Johnston, 715 Empire Bank Bldg., St. Paul, archt. CD 5/8, under LB.

▲† **N. M., Los Alamos**—SHOP—B.A. 8/30—U. S. Atomic Energy Comm., Los Alamos, Proj. "L", TA-3, 240x600 ft. mono. concrete and concrete block exterior, technical shop, Inv. No. 291-52-3. $2,250,000-$3,000,000.

▲ **Mo., Clayton (St. Louis 5, P. O.)**—SCHOOL—B.A. 9/1—Town School Dist., Bd. Educ., John L. Bracken, supt., 7500 Maryland Ave., brick, concrete, steel high school, incl. cafeteria, gymnasium, auditorium and theater bldg., industrial arts and shop bldg., garage, homemaking and domestic science bldg., heating plant, $1,800,000. Wm. B. Ittner, Inc., 408 Bd. Educ. Bldg., 911 Locust St., St. Louis, Zone 1, archt. CD 12/18.

Mo., Springfield—OFFICE—B.A. in September—City Utilities Co., 324 E. Walnut St., 3 story, bsmnt., 84x94 ft., rein.-con., brick office, $350,000, Hawkins & Esterly, McDaniel Bldg., archts. Received no bids 7/1. CD 4/12.

▲ **Mo., St. Louis**—SCHOOL—B.A. About 10/1—St. Louis Archdiocese of the Catholic Church, c/o Most Rev. Joseph E. Ritter, archbishop, 3810 Lindell Blvd., St. Zone 8, 1, 2 and 3 story, brick, rein.-con., steel Bishop DuBourg High School, Eichelberger St. and Clifton Ave. $2,000,000. Joseph D. Murphy, 4746 McPherson Ave., Zone 8, archt. CD 8/14/50.

Tex., Port Arthur—PLANT FACILITIES—Bids Asked—Koppers Co. Inc., Koppers Bldg., Pittsburgh, Pa., railway spur tracks, $100,000; area outside lighting sys., $75,000; road constr. and paving, $100,000; site earthwork, grading, leveling, drainage, $85,000; sanitary sewer sys., $65,000; water sys., $70,000. W. H. Ayres, c/o owner, ch. engr. CD 6/1, under LB.

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▲ Tex., Brownsville—PLANT—Bids Asked—Texas International Manganese Corp., c/o F. W. Hofmokel, port director, Brownsville, industrial plant, $1,250,000. CD 7/5.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

MINNESOTA—State Hy. Dpt., 1246 University Ave., St. Paul.

E. Olson & Sons, Albert Lea, Minn. LB $161,630. grav. base, plant-mixed bit. surf. 0.5 mi. in Albert Lea Freeborn Co.

Okes Constr. Co., E. 1501 First National Bank Bldg., St. Paul, Minn., LB $219,915, soil-cement base, plant-mixed bit. surf. 7 mi. between T. H. 1 at Oslo and Big Woods, Marshall Co.

J. Dieseth Co., Fergus Falls, Minn., LB $282,802. soil-cement base, plant-mixed bit. surf. 9 mi. between 10 mi. north of East Grand Forks and Alvarado, Marshall and Polk Counties.

rejected bids June 29, 10 mi. between 2.7 mi. west of Embarrass and 0.7 mi. south of Tower, L. B. $253,752.

† **Kileen & Wille Constr. Co.**, Superior, Wis. CA $340,597, hangar; **Joseph A. Bass Co.**, 332 Sexton Bldg., Minneapolis, Minn., CA $307,800, buildings and facilities at Duluth Air Force Base, Inv. 60, DULUTH, MINN. L. S. Eng. 1709 Jackson St., Omaha, Neb. Bids July 6. CD 6/21.

Chicago Bridge & Iron Works, 332 S. Michigan Ave., Chicago, Ill. LB $93,950. furnish, constr. 500,000 gal. water storage tower and tank, EDINA (MINNEAPOLIS P.O.), MINN. Village, B. Hawthorne, clk., Edina, Minn. Bids July 9.

H. J. Frederickson, Cannon Falls, Minn. CA $90,804. crushed rock surf. and concrete box culvert extension 9.3 mi. between T.H. 60, 5 mi. east of Kenyon and T.H. 52, RED WING, MINN. Goodhue Co.; E. P. Ekholm, aud., Red Wing, Minn. Bids July 2. CD 6/14.

† **U. S. Eng.**, 1709 Jackson St., Omaha, Neb. rejected bids June 27, stabilization of Mosquito Creek Channel, Council Bluffs, Inv. 158, IOWA. CD 6/4.

IOWA—State Hy. Comn., Ames.

W. A. Burton & Sons, Waterloo, Ia. L.B. $119,515, bridges, culverts, Proj. SN 1859, Benton and Tama Counties.

F. A. Moser, Farmersburg, Ia. L.B. $132,765. bridges, culverts, Proj. FN 449, Cedar Co.

John P. Abramson, 720 Savings & Loan Bldg., Des Moines, Ia. L.B. $85,611. bridges, culverts, Proj. FN 588, Decatur Co.

Christensen Bros., Sioux City, Ia. L.B. $63,292, bridges, culverts, Proj. SN 1823, Guthrie Co.

Schroyer Constr. Co., Newton, Ia. L.B. $97,707. bridges, culverts, Proj. SN 1478, Jasper Co. Bids July 10. CD 6/28.

▲ IOWA—State Hy. Comn., Ames.

Booth & Olson, Inc., 529 Insurance Exchange Bldg., Sioux City, Ia. L.B. $162,554, paving 3.978 mi. Proj. SN 853, Greene Co.; L.B. $529,535, paving 1.987 mi., Proj. U 886 (5), Woodbury Co.

McCarthy Improv. Co., Davenport, Ia. L.B. $388,944, b. conc. resurf. 31.07 mi., Proj. P 1015, Benton and Blackhawk Counties; L.B. $107,053, b. conc. resurf. 7.047 mi., Proj. P 548, Buchanan Co.; L.B. $399,364, b. conc. resurf. 28.791 mi., Proj. P 1018, Cedar and Linn Counties; L.B. $238,048, b. conc. resurf. 20.531 mi., Proj. P 640, Dallas Co.; L.B. $106,221, b. conc. resurf. 6.909 mi., Proj. FN 225, Linn Co.; L.B. $169,426, b. conc. resurf. 12.247 mi., Proj. FN 230, Linn Co.

Fred Carlson Co., Decorah, Ia. L.B. $378,121. wid'n., resurf. 5.608 mi., Proj. FN 799, Poweshiek Co.

Concrete Materials & Constr. Co., Cedar Rapids, Ia. L.B. $97,927, stab.-sized base, bit. surf. 3.491 mi., Proj. S 1441 (1), Clinton Co.; L.B. $118,893, stabilized base and bit. surf. 4.789 mi., Proj. S 1602 (2), Clinton Co.

Strother & Riehm, Inc., Eldon, Ia. L.B. $163,048. grading 8.182 mi., Proj. FN 469, Cedar Co.

Lowe Constr. Co., Marion, Ia. L.B. $71,923. grading 5.608 mi., Proj. FN 799, Poweshiek Co.

received no bids July 10, paving 2.133 mi., Proj. U 940 (4), Lee Co. Bids July 10. CD 6/28 and 7/5.

Van Dusseldorf Constr. Co., Colfax, Ia. CA $95,277. Proj. SN 884, grading 5.85 mi., Proj. SN 1595, grading 4.478 mi., LEON, IA. Supervs., Decatur Co., Leon, Ia. Floyd K. Brown, co. engr. Bids July 6.

Carl Chadek Trucking Service, 515 3 Ave., Iowa City, Ia. CA $88,480. crushed limestone, resurf. 217.79 mi. involving 87,116 tons materials on road, IOWA CITY, IA. Bd. Supvrs. Johnson Co., Court House, Iowa City, Ia. Bids June 26. CD 6/20.

Chambers Constr. Co., 621 Trust Bldg., Lincoln, Neb. CA $83,299. 16,560 lin. ft. 8- to 12-in. vitr. clay sewer, 100 wyes, 60 manholes, 5,250 lin. ft. 6-in. C.I. force main, lift station, etc., SERGEANT BLUFF, IA. City, Myrl F. Stott, clk., Sergeant Bluff, Ia. Bids July 2. CD 6/28.

Lee Ball, Springfield, Mo. CA $86,655. concrete paving and curb on Campbell Ave., SPRINGFIELD, MO. City, Springfield, Mo., O. H. Reynolds, city engr.

▲† **Bethlehem Steel Co.**, E. 3 St., Bethlehem, Pa. CA $1,694,563. galvanized-steel single-circuit towers and appurtenances for Bismarck-Mobridge-Oahe 230 kv transmission lines, Garrison Dam approach spans and ties to switchyard between Oahe and Sioux City, Spec. DS-3392, Missouri River Basin Proj., Transmission Div., NORTH DAKOTA and SOUTH DAKOTA. Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo. Bids May 22, awarded June 29. CD 6/1, under LB.

▲† **Hallett Constr. Co.**, Crosby, Minn. and **Continental Co.**, Dayton, O., CA $5,388,193, construct fdns., erecting steel towers, stringing conductors and overhead ground wires for 167 mi. of Bismarck-Mobridge-Oahe 230 kv transmission line and 135 mi. of Fort Randall-Oahe 230 kv. transmission line, Spec. 3408 and 3409, NORTH DAKOTA and SOUTH DAKOTA. Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Bids June 12, awarded June 29. CD 7/3, under LB.

OKLAHOMA—State Hy. Dpt., Capitol, Oklahoma City 5, Okla.

W. E. Logan & Son, Barnes Bldg., Muskogee, Okla., CA. $72,486 est. $81,671, underpass at Middle Valley R.R. tracks and U.S. 69 in Muskogee. Bids July 10, awarded July 11.

† OKLOHAMA—State Hy. Dpt., Capitol, Oklahoma City 5, Okla.

Park-Ward Co., 711 N. W. 38 St., Oklahoma City, Okla., CA. $142,094, est. $142,292, base single bit. paving 6.996 mi., 6 ft. primed shoulders on S.H. 134 on Rogers Mills Co. line north, Rogers Mills Co.; CA. $132,607, est. $131,983, base single bit. paving 7.107 mi. from Hammon North, Custer Co., CA. $91,014, est. $90,650, base single bit. paving 5.032 mi. from 7 mi. north of Hammon north to Dewey Co. line, Custer Co.

Standard Paving Co., 2119 E. 11 St., Tulsa, Okla., CA. $66,169, est. $70,523, road bed c. conc. pavement, wid'n. and resurf. 538 mi. Bois D'bec Ave. in Duncan, Stephens Co.

Quapaw Constr. Co., Quapaw, Okla., CA. $90,479, est. $109,490, road bed grav. surf. 519 mi., and piers for 561 ft. steel bridge on Spavinaw Creek south of Jay, Delaware Co.

Smith Bros., Noble, Okla., CA. $78,872, est. $81,908, asph. stabil. base and bit. pavement 5.032 mi. South Hy. 41 mi. east from the Texas State line, Beckham Co.

W. E. Logan & Sons, Barnes Bldg., Muskogee, Okla., CA. $436,750, est. $586,604, road bed c. conc. pavement and culverts 3.018 mi. on 32 streets in Muskogee, Muskogee Co. Grand total $1,237,984. Bids July 10, awarded July 11.

L. Webb Plumbing & Heating Co., 141 Oak St., Abilene, Tex., LB. $124,750, est. $70,000 revamping, imprv. tunnel, hot steam and water pipe systems, ABILENE, TEX. Board for Texas State Hospitals & Special Schools, 45 and Lamar Sts., Austin, Tex. Bids July 6. Leonard E. Kanto, N. P. Anderson Bldg., Fort Worth, engr.

O. L. Stevenson, Granger, Tex., CA. $73,335, est. $90,000, base course surf. 7.454 mi. U.S. Hy. 290 south toward String Prairie, BASTROP, TEX. Bastrop Co., Bastrop, Tex. Joe Gresham, Bastrop, Tex., engr. Bids Jan. 27.

City, Bonham, Tex. Own Forces. $36,615. rein.-con. and elevated storage tank, Contr. A $47,775, Contrs. B and C water pumping station and laying water mains, BONHAM, TEX. Bids Mar. 19. CD 3/7.

City, Brownsville, Tex. Own Forces. $55,000. partial rehabilitation of WW., BROWNSVILLE, TEX. Sigler, Clark & Winston, Weslaco, Tex., engrs. CD 12/18/50.

City, Brownsville, Tex. Own Forces. $70,000. partial rehabilitation sanitary sewerage sys., BROWNSVILLE, TEX. Sigler, Clark & Winston, Weslaco, Tex. engrs. CD 1/5.

City, City Hall, Main and Harwood Sts., Dallas, Tex., Force Account, $100,000, modernizing, expanding municipal electric traffic signal street sys. DALLAS, TEX. J. T. Conroy, Pub. Wks. engr. CD 8/3/50.

John G. Holland Const. Co., 1602 Old Spanish Trail Rd., Houston, Tex. CA. $735,581, water and sewers in Sunnyside Community area, HOUSTON, TEX., Harris County Water control & Imprv. Dist. 22, Court House, Houston, Tex. Bids July 11, Garrett Eng. Co., 5008 Almeda St., Houston, Tex. engr.

† **J. L. Hair & Sons Constr. Co.**, 2704 Kemp Blvd. Wichita Falls, Tex. CA. $660,000. Shepherd Air Force Base HOSPITAL rehabilitation, WICHITA FALLS, TEX. U. S. Eng., Box 61, Tulsa, Okla. Awarded July 11. CD 3/14.

O'Connor Constr. Co., Kalispell, Mont. CA $70,050. install 1500 ft. 2- to 6-in. water lines, 10 guage steel and 11,000 ft. 6- to 10-in vitr. clay sewer pipe and standpipe at unincorporated town of Rudyard, HAVRE, MONT. Comrs. Hill Co., Havre, Mont. Awarded July 3. R. T. Hurdle & Sons, 216 N. 22 St., Billings, engrs.

† **Walker-Lydick Constr. Co.**, Grand Junction, Colo. CA $225,000, mess hall at F. E. Warren Air Force Base, CHEYENNE, WYO. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids June 28. CD 6/13.

▲ † **Southwest Welding & Mfg. Co.**, Alhambra, Calif. CA $4,284,513. Schedules 2, 4, 6 and 8, constr. steel penstocks and manifold and concrete penstock structures for Pole Hill power plant and Flatiron power and pumping plant, Estes Park-Foothills power aqueduct, Colorado-Big Thompson Proj., Spec. DC 3431, COLORADO. Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver, Colo. Awarded June 29. CD 7/2, under LB.

▲ † **Winston Bros. Co.**, Monrovia, Calif. CA $1,149,212. earthwork, canal lining, tunnel and structures for Horsetooth feeder canal, Station F 7 plus 31.5 to 53 plus 70.25, Colorado, Big Thompson Proj., Spec. DC 3441, COLORADO. Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver, Colo. Awarded June 29. CD 7/16, under LB.

▲ † **Mead & Mount Constr. Co.**, Railway Exchange Bldg., Denver, Colo., LB. $1,716,000, rein.-con. shell-arch type, Naval Air Reserve Training Hangar, leantos, adjacent apron extension, sidewalk and paved areas, Spec. 29458, Buckley Field, DENVER, COLO. Dpt. Navy, Buckley Field Naval Air Station, Denver, Colo. Bids June 27. CD 1/31.

† **Winger Constr.**, 1200 E. Main St., Ottumwa, Ia., CA. $740,000 est. $674,775, addnl. power and steam supply facilities, turbo-generator, boiler, fans, pumps, etc. Inv. No. 291-51-112, LOS ALAMOS, N. M. U. S. Atomic Energy Comn., Los Alamos, N. M. Bids June 27. Awarded July 3. CD 7/3, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

Roel Constr. Co., 20 N. 14th St., Fargo, N. D. L.B. $154,100. heating and maintenance BUILDING at North Dakota State School of Science, WAHPETON, N. D. State Bd. Higher Educ., Bismarck, N. D., 702 Wesley Temple Bldg., Minneapolis, Minn., engrs.

John Lof & Sons, 4012 Lake St., Omaha, Neb., CA. $491,631. general constr. HIGH SCHOOL, 87 and Pacific Sts., west of OMAHA, NEB. School Dist. 66, Douglas Co., R. F. D. from Omaha. Underwood School dist., etc. Omaha, Neb. L. A. Daly Co., Insurance Bldg., Omaha, Neb. archt. Bids June 29.

Southwestern Service Co., 420 Polk St., Amarillo, Tex. Own Forces. $145,600. MAINTENANCE and STORAGE, AMARILLO, TEX. CD 5/25.

Jansen Constr. Co., 1203 Powhattan St., Dallas, Tex., LB. $769,900. Senior HIGH SCHOOL, GRAND PRAIRIE, TEX., Grand Prairie Independent School Dist., Grand Prairie, Tex. Bids July 9. CD 6/8.

Koppers Co. Inc., Koppers Bldg., Pittsburgh, Pa. Own Forces. Approx. $675,000. rein.-con. fdns. for Chemical PLANT on 80 acre site, PORT ARTHUR, TEX. CD 6/1, under LB.

Fox & Jacobs Const. Co. Inc., 3911 Oaklawn St., Dallas, Tex., LB. $449,425. est. $468,000. construct, manage, finance 55 units HOUSING, Inv. No. Eng. 34-066-51-28. TEXARKANA, TEX. U. S. Eng., Box 61, Tulsa, Okla. Bids July 10.

▲ **Refinery Engineering Co.**, Wright Bldg., Tulsa, Okla. CA est. $3,000,000. vacuum asphalt, Polymer gasoline catalytic cracking PLANT addn. to existing refinery, gasoline concentration unit, LAUREL, MONT. Farmers Union Central Exchange, Ind., Hart-Aldin Bldg., Billings, Mont. CD 12/29.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

† **Washington**—UTILITIES—B.A. 8/1—Bureau Reclamation, Dpt. Interior Bldg. 1A, Denver Federal Center, Denver, Colo., constr., streets, utilities, moving quonset bldgs. for O & M headquarters at Ellsport, Columbia Basin Proj. Spec. 1170-105, L. N. McClellan, Bldg. 1A, Denver Federal Center, Denver, Colo., ch. engr.

Wash., Wenatchee—B.A. 8/3—Chelan Co.; c/o Stone & Webster Eng. Corp., 49 Federal St., Boston, Mass., 120 tons structural steel for transmission line towers in expansion of Rock Island Dam, with or without erection. CD 1/2.

Wash., Wenatchee—B.A. 8/6—Chelan Co. Public Utilities Dist., c/o Stone & Webster Eng. Corp., engrs., 49 Federal St., Boston, Mass., 80 ton electric gantry crane for expansion of Rock Island Dam. CD 1/2.

† **California**—B.A. 8/7—Bureau Reclamation, Dpt. Interior, Goleta, Glenn Anne Dam, Cachuma Proj. on west fork of Glen Anne Canyon Creek, approx. 6 mi. northwest of Golet, Spec. No. DC-3482. CD 4/14/44.

† **Idaho**—B.A. 8/7—Bureau Reclamation, Dpt. Interior Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Mountain Home, switchgear assemblies and equipment, etc. for Anderson Ranch Power Plant, Boise Proj. Spec. DS-3473. L. N. McClellan, ch. engr.

† **Washington**—B.A. 8/8—Bureau Reclamation, Dpt. Interior, Ephrata, constr. earthwork, structures, Potholes East Canal Station 1370 plus 50 to Station 2489 plus 41.75, Ringold wasteway Station 0 plus 00 to Station 240 plus 20 and lateral PE 47 Station 0 plus 00 to Station 2 plus 29.88, Columbia Basin Proj., near Mesa, Spec. DC 3494; adv. ENR 7/26.

† **California**—B.A. 8/9—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing one 54-inch inside diameter-welded-plate-steel outlet pipe and appurtenances for Cachuma Proj., Spec. DS-3496; adv. ENR 7/26. CD 4/20/45.

† **Oregon**—B.A. 8/9—U. S. Eng. Bldg., 602 Cite-County Airport, Walla Walla, Wash., spillway gates and appurtenances for McNary Dam, Inv. No. CIVENG 45-164-51-69.

† **Washington**—TURBINE GOVERNORS—B.A. 8/13—U. S. Eng. 4735 E. Marginal Way, Seattle, Zone 4, three 19,600 hp. hydraulic turbine governors for Albeni Falls Dam, Inv. Civeng 52-1.

† **California**—SWITCHBOARDS, etc.—B.A. 8/14—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Delano, Calif. switchboards and starters, cabinet, switches for Pumping Plants S-4 to S-10, inclusive and S-12 to S-14 inclusive on lines 124.5E, 127.7E and 130.4E and unit 3, Southern San Joaquin Municipal Utility Dist. Friant-Kern Canal Distribution System Central Valley Proj. DS-3480. L. N. McClellan, ch. engr.

† **Idaho**—HYDRAULIC TURBINES—B.A. 8/14—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars American Falls, 3 vertical-shaft 14,000 h.p., 150 rpm hydraulic turbines for America Falls Power Plant, Minidoka Proj., Inv. No. DS 3487.

† **Oregon**—B.A. 8/14—U. S. Eng., 628 Pittock Block, Portland, Zone 5, procurement of control center, diverter pole motor-generator set and battery switchboard for Big Cliff Reregulating Dam Powerhouse, Serial No. CIVENG 35-026-52-6.

† **Oregon**—B.A. 8/14—U. S. Eng., Pittock Block, Portland, control center, diverter pole motor-generator set and battery switchboard for Big Cliff Reregulating Dam Powerhouse, Civeng 35-026-51-2, Marion Co.

Wash., Forks—B.A. 8/14—Clallam Co. Pub. Utilities Dit., Port Angeles, 345 kw. diesel driven generator for hydroelectric proj.

† **Idaho**—SUB-STATION—B.A. 8/21—Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point, or f.o.b. cars Mountain Home, Idaho, one 2,000 kva, 24,940 grounded wye 14,400 to 6,600 delta volt, 3 phase, 60-cycle, oil immersed, self cooled, outdoor power transformer with 3 single pole, outdoor lightning arresters, for 23,000 volt grounded-neutral circuit, mounted on tank, one 23,000 volt, 600 ampere, 250,000 kva interrupting rating, outdoor power circuit breaker, one 23,000 volt, 400 ampere, 3 pole, single throw, manually gang operated, outdoor horn-gap switch, six 23,000 volt, 400-ampere, single pole, single throw hook-operated, outdoor disconnecting switches, and one 15,000 volt-insulated, 50 to 5-ampere, wound-type, outdoor current transformer, for Prairie Power Co-operative Sub-station, Boise Proj. Spec. DS 3492. L. N. McClellan, ch. engr.

† **Oregon**—B.A. 8/28—U. S. Eng., Pittock Block, Portland, fdn. drilling and grouting at Detroit Dam, Marion Co. CIVENG 35-026-51-2.

† **California**—B.A. 8/31—U. S. Eng., 1209 Eighth St., Sacramento, Folsom Dam and appurtenant works, Folsom Reservoir Proj., near Folsom, Serial No. CIVENG 04-167-52-1. Extended date, CD 6/28.

BIDS ASKED—BUILDINGS

Wash., Cashmere—SCHOOL—B.A. 8/3—School Dist. 122, 1 story, masonry school with radiant heating, $390,000. Plans deposit $45. Johnson & Botesch, 313 First National Bank Bldg., Everett, archts. CD 12/1/48.

Calif., Pittsburg—SCHOOL—B. A. 8/7—Pittsburg Unified School Dist., 250 School St., Pittsburg, Pittsburg Heights Elementary School. CD 7/7/50.

▲ **Wash., Port Angeles**—SCHOOL—B. A. 8/8—School Bd., Port Angeles, 5 buildings for high school, $1,211,000. Mallis & De Hart, Lyon Bldg., Seattle 4, Wash., archts. Extended date, CD 6/51.

▲ **Utah, Ogden**—HIGH SCHOOL—B.A. 8/9—Bd. Educ., 2351 Grant Ave., general constr., plumbing and heating and electrical for high school, $1,000,000. Lawrence D. Olpin, Kiesel Bldg., archt. CD 12/7/50.

† **Oregon**—SUB-STATION—B.A. 8/14—U. S. Eng., Bldg. 602, City-County Airport, Walla Walla, Wash., powerhouse unit sub-station, Units 1 to 8, McNary Dam, Inv. No. CIVENG 45-164-51-2.

▲ **Utah, Salt Lake City**—HIGH SCHOOL—B.A. 8/14—Granite School Dist., 3212 S. State St., Senior High School in Granite Park, $1,200,000. Young & Ehlers, Continental Bank Bldg., archts. CD 5/7.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Bureau Reclamation**, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo., rejected bids June 27, exploratory drilling for concrete aggregate investigations at Covin's Ranch, Halls Canyon Proj., Spec. 100C-129, IDAHO. CD 6/13.

WASHINGTON—State Hy. Dpt., Olympia,

C. A. Powers, E. 915 Marietta St., Spokane, Wash., LB $97,928, light bit. surf. rein.-con. girder bridge on Primary State Hy. 3, Deer Park bypass, Spokane Co.

J. D. Shotwell, 3113 S. Pine St., Tacoma, Wash. LB $89,810; surf. Type 1-1 b. conc. paving non-skid single seal on 20.1 mi. Primary State Hy. 5 and 1, Sumner to Buckley, Pierce Co.

Standard Asphalt Paving Co., Chronicle Bldg., Spokane, Wash. LB $62,425, non-skid single seal tr. 62.9 mi. State Hy. 3, 6, 7, 11, 18, 22, 3-H, 3-I and 11-C, Oakdale to Palouse, Whitman, Lincoln, Spokane and Pend Counties.

White Bros., Chehalis, Wash. LB $420,932, drainage, grading 2.2 mi. Primary State Hy. 1, Chehalis north, Lewis Co. Bids July 10. CD 6/28.

Washington—State Hy. Dpt., Olympia,

Doolittle Constr. Co., 510 Adams St., Seattle, Wash., LB. $79,206, rein.-con. girder bridge together with grading, surf. approaches with type 1-1 asph. conc. over Issaquah Creek, King Co.

Bennett & Campbell, 9648 N. Beach Dr., Seattle, Wash., LB. $173,283, two rein.-con. box girder bridges together with drainage, grading, surf. approaches on 0.3 mi. Vesta Rd., Grays Harbor Co. Bids July 10. CD 6/28.

† **Funderburk Constr. Co.**, Skykomish, Wash. CA. $31,840, est. $27,357 replacement flood control works on Skykomish River, Inv. CIVENG 51-73, WASHINGTON. U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash. CD 7/12, under LB.

▲† **Pacific Bridge Co.**, 333 Kearney St., San Francisco, Calif. CA $2,199,800, est. $1,689,000. Grand Coulee Dam River channel slope protection, Columbia Basin Proj., Spec. DC 1443, WASHINGTON. Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo. Awarded June 29. CD 6/26, under LB.

Woodworth Constr. Co., 1200 E. D St., Tacoma, Wash. LB. $70,377, widen Stadium Way, TACOMA, WASH. City, City Hall, Tacoma, Wash. D. E. Morris, city engr.

† **Columbia Asphalt Paving Co.**, Yakima, Wash. CA $221,347, est. $296,377, seeding, surf. road and yard area and fencing at training center, Contr. E. Inv. Eng. 45-108-51-209, YAKIMA, WASH. U. S. Eng., 4735 E. Marginal Way, Seattle, Wash. Bids July 10. CD 6/28.

Leonard & Slate, 7805 S.W. 40 St., Portland, Ore. LB. $840,091, Willow Creek WW dam; **K. C. Wernmark**, Medford, Ore., LB. $57,150, clearing for WW dam, 310 acres, MEDFORD, ORE. City, City Hall, Medford, Ore. Bids July 9. CD 6/22.

P. S. Lord, 4507 S. E. Milwaukie St., Portland, Ore. CA. $254,230, STEAM BOILER, turbine generator and switchgear, Oregon State College, CORVALLIS, ORE. State Bd. Control, University of Oregon, Eugene, Ore. Bids June 28. CD 5/23.

E. E. Settergren, Henry Bldg., Portland, Ore. LB. $183,300, concrete WAREHOUSE, EUGENE, ORE. Eugene Water & Electric Bd., City Hall, Eugene, Ore. Bids July 6. Ralph C. Beardsworth, 266 E. 11 St., Eugene, Ore., archt.

Ketell Constr. Co., Board of Trade Bldg., Portland, Ore. Owner Builds. $350,000. 14 unit HOUSING development, PENDLETON, ORE.

▲† **Morrison-Knudsen Co., Inc.**, 511 W. 5 St., Los Angeles, Calif., CA, $1,660,048, refueling system for airplanes at Travis Air Force Base, FAIRFIELD-SUISUN, CALIF. U. S. Eng., Wright Bldg., Sacramento, Calif. Awarded July 6. CD 4/5.

Wilhelm Steel Constr. Co., 12901 S. Yukon Ave., Hawthorne, Calif., CA, $89,150, construct aircraft hangar, LONG BEACH, CALIF. City Council, 205 W. Broadway, Long Beach, Calif. Bids July 3. CD 7/6.

Harvey Gost, 10541 Blythe Ave., Los Angeles, Calif., CA., $314,832, Paradise Canyon Channel, Pasadena, LOS ANGELES, CALIF. Los Angeles Co., Flood Control Dist. 751 S. Figueroa St., Los Angeles, Calif. Bids May 29. awarded July 10. CD 5/8.

† **Steadman & Powell, Inc.**, 1034 45 Ave., Oakland, Calif. CA. $72,354, rehabilitate facilities at Naval Magazine, Spec. 29618, PORT CHICAGO, CALIF., Twelfth Naval Dist., Federal Office Bldg., San Francisco, Calif. Bids June 13, awarded July 3. CD 5/31.

▲† **M & K Corp. and Haas & Rothschild**, Financial Center Bldg., San Francisco, Calif., Contract Awarded, $2,517,980, constr. global communication center at McClellan Field, SACRAMENTO, CALIF. U. S. Eng., Wright Bldg., Sacramento, Calif. Awarded July 6.

▲† **Beyer & Abrahamson**, 319 North and Hill Bldg., Los Angeles, Calif., CA $1,023,994, constr. hangar at Van Nuys National Guard Field, NG 51-30, VAN NUYS, CALIF., Purch. & Contg. Office, U. S. Property & Disbursing Office, San Luis Obispo. CD 7/3, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Stankevitz & Coates Constr. Co.**, c/o Alvin L. Mason, archt., Judge Bldg. Salt Lake City, Utah, CA. Approx. $8,225,000. 22 story OFFICE and apartments, parking garage below ground. A St. and South Temple St., SALT LAKE CITY, UTAH. Radio City, Salt Lake c/o archt. CD 6/14.

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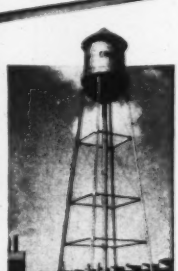

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Guy E. Hall, 310 30 St., Bakersfield, Calif., CA $323,869, GYMNASIUM BLDG. at Rio Bravo Union Elementary School, BAKERSFIELD, CALIF. Rio Bravo Union School Dist., Route 4, Box 500, Bakersfield, Calif. Wright, Metcalf, Parsons, Morgan Bldg., Calif., archts. CD 4/7/50.

Bellflower School Dist., 6145 N. Clark Ave., Bellflower, Calif., rejected bids June 6, 37,000 sq. ft. primary SCHOOL, BELLFLOWER, CALIF. CD 6/12, under LB.

▲ **Ford J. Twaits Co.**, 449 S. Beaudry St., Los Angeles, Calif. CA. $1,000,000, est. $750,000. 4 story, rein.-con. LIBRARY, CLAREMONT, CALIF. Claremont College, Claremont, Calif. CD 5/28.

Otis Oliver, 1827 W. 145 St., Gardena, Calif. CA. $101,436, 1 story SHOP at Narbonne High School, Lomita, LOS ANGELES, CALIF. Los Angeles Bd. Educ., 1425 S. San Pedro St., Los Angeles, Calif. A. S. Nibicker, Jr., c/o owner, archt.

Baruch Corp., 5655 Wilshire Blvd., Los Angeles, Calif., CA. $409,000, est. $250,000. reconstruct Wilson HIGH SCHOOL, LONG BEACH, CALIF. Bd. Educ., 715 Locust Ave., Long Beach, Calif. Hugh Gibbs, 441 E. 1 St., Long Beach, Calif., archt. Bids July 6. CD 11/18/46.

▲ **John E. Branagh & Son**, 105 Sheridan Ave., Piedmont, Calif., LB, $2,772,777, McClymonds High SCHOOL, 2607 Myrtle St., OAKLAND, CALIF. Bd. Educ., 1025 Second Ave., Oakland, Calif. Bids July 10. CD 6/11.

▲† **Bechtel Corp.**, 220 Montgomery St., San Francisco, Calif., CA, $1,101,000, Riverbank Ordnance STATION, RIVERBANK, CALIF. U. S. Eng., 180 New Montgomery St., San Francisco, Calif. Awarded July 6.

Cannon Constr. Co., P.O. Box 1073, Palo Alto, Calif. LB. $369,660. Pacific Manor SCHOOL, SHARP PARK, CALIF. Laguna-Salada Union Elementary School Dist., Sharp Park, Calif. Bids June 29. CD 6/21.

Earl O. Stice, Glendale, Calif., Low Bidder, $658,850, mechanical work at receiving and TREATMENT UNIT, Stockton State Hospital, STOCKTON, CALIF. State Div. Architecture, P. Wks. Bldg., Sacramento, Calif. Bids July 10. CD 6/19.

John Dresch, 211 N. Olive St., Ventura, Calif. CA. $776,378, 100 unit low rent HOUSING, VENTURA, CALIF. Buenaventura Housing Auth., 474 E. Main St., Ventura, Calif. Bids June 14. CD 6/21, under LB.

ALASKA

BIDS ASKED—HEAVY CONSTRUCTION

†**Alaska**—FACILITIES—B.A. 8/1c—U. S. Eng., New Washington Hotel, Seattle 1, Wash., ACS facilities at Anchorage, Fairbanks, Haines, Skagway, Lena Point and Naknek, Inv. S95-51-119. Plans deposit $50.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **S. Bergesen**, Route 10, Box 971, Tacoma, Wash., LB. $579,291, antennas, transmission lines, bldg., etc. for VHF communications facilities at McGrath, Minchumina and Farewell, Inv. No. 851-630, ALASKA. Civil Aeronautics Admin., Dpt. Commerce, Box 440, Anchorage, Alaska. Bids July 3. CD 6/15.

▲† **S. Macri Constr. Co.**, 511 21 Ave., N., Seattle, Wash. and **A. G. Rushlight**, 55 N. E. Farragut St., Portland, Ore., LB. $1,899,059, est. $1,924,054 water treatment facilities and sewage treatment plant, Item 2, Inv. No. 51-100, Ladd Air Force Base*** **Southern Constructors**, Fairbanks, Alaska, LB. $2,055,000, est. $2,187,044, water treatment facilities and sewage treatment plant, Item 3, Inv. No. 51-100, Eielson Air Force Base, ALASKA. U. S. Eng., (APO 942, c/o PM, Seattle, Wash.) Anchorage, Alaska. Bids July 10. CD 6/28.

† **Civil Aeronautics Admin.**, Anchorage, Alaska, rejected bids June 4, LB. $2,033,314, administration bldg. at International Airport, FAIRBANKS, ALASKA. CD 7/11, under LB.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Que., St. Thomas d'Aquin—B.A. 8/6—R. Plante, Parish Hall, St. Thomas d'Aquin, 3 mi. water mains, for Municipality.

BIDS ASKED—BUILDINGS

B. C., Chilliwack—HEATING PLANT—B.A. 7/31—J. L. Adams, 360 Homer St., Vancouver, heating plant bldg. for Dpt. National Defence Army, Cartier Sq., Ottawa, Ont. Plans deposit $50. CD 7/9.

Que., Bagotville—HEATING PLANT—B.A. 8/1—M. P. McAndrew, 1247 Guy St., Montreal, Que., central heating plant for Dpt. National Defence AIR, Cartier Sq., Ottawa, Ont., Plans deposit $50.

Que., St. Hubert—HEATING PLANT—B.A. 8/1—M. P. McAndrew, 1247 Guy St., Montreal, central heating plant for Dpt. National Defence, AIR, Cartier Sq., Ottawa, Ont. Plans deposit $50.

Que., Iberville—SCHOOL—B.A. 8/2—J. R. Courtemanche, secy., c/o School Comm., Iberville, 2 story, 59x173 ft. block and brick walls, concrete fdn. Approx. $350,000. Morin-Cinq-Mars, 84 Notre Dame St., W., Montreal, archts. Lalonde & Valois, Canada Cement Bldg., Montreal, engrs.

Que., Montreal—GARAGE—B.A. 8/5—Municipality, Executive Comm., City Hall, 15x140 ft., rein.-con., municipal garage, Des Carrieres St. $300,000. Plans deposit

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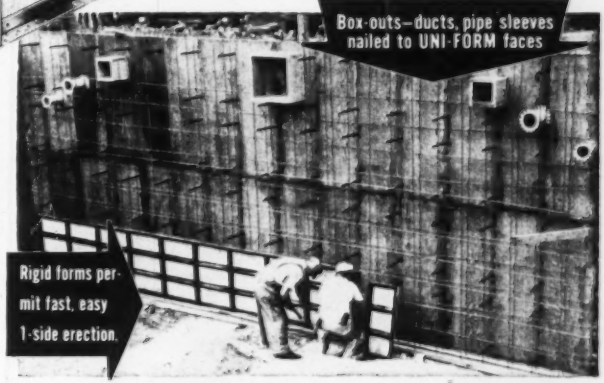

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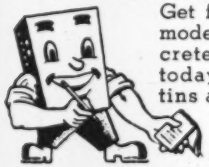

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$100. J. D. Beaupre, city archt. H. A. Gibeau, city engr. CD 3/13.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Olynik Constr. Ltd., North Battleford, Sask., CA. $34,045, install new WW sys., BARONS, ALTA. Town, Town Hall, Barons, Alta. Haddin, Davis & Brown, Ltd., 513 8th Ave. West, Calgary, Alta., engrs. Awarded June 15.

Concrete Constructors, Ltd., 518 11 Ave. E., Calgary, Alta., CA. $79,485, sewerage sys., install 15, 12, 10 and 8 in sewer mains totalling approx. 32,000 lin. ft., 75 manholes and construct 15,000 ft. 4 and 6 in. services lines, CARDSTON, ALTA. Town, Town Hall, Cardston, Alta., Bids May 28, awarded June 15. CD 5/21.

Curran & Briggs Ltd., 61 Haverson Blvd., Toronto, Ont. CA. $204,470. paving Dundas St., GALT, ONT. City, J. H. E. Ritz, clk., Galt, Ont. Bids June 28, awarded July 10.

▲ Robinson Contg. Co. Ltd., 61 Melvin St., Hamilton, Ont., CA. $534,000. Hamilton Bridge Co., Ltd., 231 Bay North St., Hamilton, Ont., CA $900,000. water mains at various locations, HAMILTON, ONT. City, City Hall, Hamilton, Ont. Awarded July 9. CD 12/23/49.

North Shore Constr. Co. Ltd., Castle Bldg., Montreal, Que., CA. $70,000. airport development, SEVEN ISLANDS, QUE. Govt. of Canada, Ottawa, Ont.

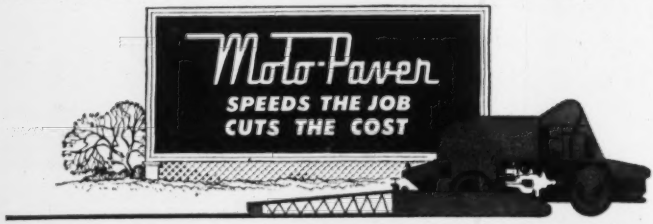
BUILDINGS

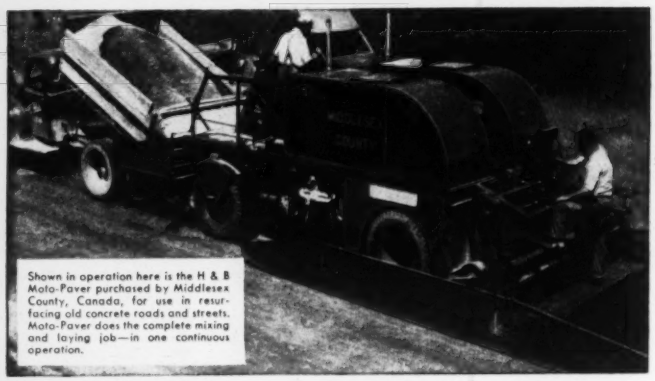
LOW BIDS AND CONTRACTS

Finley W. McLachlan, Ltd., 195 Fairbank Ave., Toronto, Ont. LB. $125,000. 2 story, bsmnt., 50x138 ft., rein.-con., brick RESEARCH LABORATORY, TORONTO, ONT. Canada Packers Ltd., 2200 St. Clair Ave. W., Toronto, Ont. Bids June 15. CD 6/7.

▲ Fidani, Munzi & Batolini, 15 Ballacayne Dr., Toronto, Ont. Owner Builds. $1,000,000. two 3 story below grade, 4 above, 182x284 ft., concrete block, brick APARTMENTS, TORONTO, ONT. Hanks & Irwin, 2848 Bloor St. W., Toronto, Ont., archts.

J. A. A. Leclair Dupuis, Ltd., 4323 Jeanne d'Arc St., Montreal, Que., CA. Approx. $650,000. 70,000 sq. ft., rein.-con., brick FACTORY, Kings Park Rd., LaSALLE, (Postal Dist. Montreal) QUE. Aviation Electric Ltd., 3483 Park Ave., Montreal, Que. J. Scholfield, 660 W. Ste. Catherine St., Montreal, Que., archt.





Shown in operation here is the H & B Moto-Paver purchased by Middlesex County, Canada, for use in resurfacing old concrete roads and streets. Moto-Paver does the complete mixing and laying job—in one continuous operation.

Resurfacing costs cut approximately 50%

In these days of increasing costs, equipment that will *save* money is certainly worth investigating. Middlesex County, in Canada, investigated the Moto-Paver and decided to use it on their 1950 road resurfacing program. When the program was completed it was found that the costs were approximately 50% lower than they would have been if the work had been done by conventional methods.

We make no claims that Moto-Paver will save *you* 50% on *your* resurfacing costs. But we do say—based on Moto-Paver performance records under all kinds of conditions, that *no other machine or method produces comparable results at comparable cost.*

Bulletin MP-49 will be sent on request.

H&B ESTABLISHED 1907

HETHERINGTON & BERNER INC.

Engineers—Manufacturers

730 KENTUCKY AVENUE INDIANAPOLIS 7, IND.

PROPOSED PROJECTS

WATER SUPPLY

Calif., Pittsburg—City, City Hall, $830,000 bond election, Sept. 11, 8 m. g. p. d. filtration plant and 6 m. g. reservoir. Clyde C. Kennedy, 604 Mission St., San Francisco, consult. engr. CD 4/27.

Ill., Newton—City, WW and sewerage sys., modifications, $200,000. Crawford, Murphy & Tilly, 400½ E. Adams St., Springfield, consult. engrs.

Okla., Altus—City, addnl. water mains to be extended to various parts of city, $150,000.

Pa., Pittsburgh—City, Dpt. P. Wks., City Hall, 1 story brick, tile, booster pumping station, $100,000. J. C. Stevenson, 416 City-County Bldg., engr. CD 11/22/45.

Tex., Baytown—City, bond election Sept. 22, Job 2, WW sys. expansion $400,000; Job 6, WW rehabilitation, $125,000. George M. Hillyer, city engr. CD 9/22/50.

Tex., Saginaw—City, voted bonds, Proj. 1, water sys. rehabilitation, $160,000; Proj. 2, water storage, $110,000; Proj. 3, c.i. water mains, distr., supply, $260,000. CD 6/22.

SEWERS, WASTE DISPOSAL

Calif., Pittsburg—City, City Hall, $725,000 bond election Sept. 11, sewage disposal plant. L. H. Cook, 950, Crane St., Menlo Park, consult. engr. CD 12/5.

Calif., Porterville—City, City Hall, defeated $450,000 bonds, imprvs. city sewerage sys. CD 6/4.

▲ Kan., Olathe—Johnson County Sewer Distr. 1, Olathe, Kan., $796,400 bond election July 26, sewage plant, $518,040; sewers, $229,200 pumping units and mech. equip for present pumping plant. Black & Veatch, 4706 Broadway, Kansas City, Mo., consult. engrs.

Mich., East Jordan—City, P. Wks. Dpt., sewage plant treatment facilities, $150,000, Powers Eng. Co., 209 Anderson Bldg., Traverse City, consult. engr. CD 11/5/45.

Minn., Lauderdale—Village, G. Gunderson, clk., voted $105,000 bonds July 2, connect proposed sewage collection sys. with Minneapolis-St. Paul sys.; outfall sewer connecting at Como and 33 Ave. southeast. E. G. Briggs, 2360 University Ave., St. Paul, consult. engr. CD 3/3/50.

Pa., McDonald—McDonald Boro, sewage treatment, $200,000. H. M. Day, 502 W. College St., Canonsburg, engr.

† Tex., Fort Hood—U. S. Eng., 606 Santa Fe Bldg., Galveston, sanitary sewers, $75,000; storm sewers, $65,000, for General Army area.

Tex., Saginaw—City, voted bonds, Proj. 4, sewage disposal plant, $140,000; Proj. 5, sanitary sewerage sys. rehabilitation, $125,000; Proj. 6, sanitary sewer lines, $160,000. CD 6/22.

BRIDGES

▲ NORTH CAROLINA—State Hy. and Pub. Wks. Comm., Raleigh.

Rowan Co.—grading and approaches to Yadkin River Bridge, U.S. 29, $100,000.

Oklahoma—State Hy. Dpt., Capitol 5, Oklahoma City, Okla.

Cleveland Co.—bridge over South Canadian on Hy. 79 W. west of Norman, $750,000. G. H. Bitte, c/o owner, engr.

▲ Tennessee—State Hy. Dpt., Nashville.

Hamilton Co.—bridge over Tennessee River, in Chattanooga, $5,000,000.

STREETS AND ROADS

▲ Massachusetts—State Pub. Wks. Office, 100 Nashua St., Boston.

Lee and West Stockbridge—highway and bridge 4 lanes 10 mi., $8,000,000.

N. Y., Amherst—Town, 21.11 mi. roads, $258,150.
N. Y., Ballston—Town, 15.93 mi. roads, $111,500.
N. Y., Charlton—Town, 31.4 mi. roads, $219,800.
N. Y., Chesterfield—Town, 26.4 mi. roads, $266,300.
N. Y., Clifton—Town, 22.65 mi. roads, $227,500.
N. Y., Corinth—Town, 25.75 mi. roads, $110,250.
N. Y., Crown Point—Town, 20.35 mi. roads, $148,286.
N. Y., Edinburg—Town, 25.8 mi. roads, $180,600.
N. Y., Halfmoon—Town, 20.9 road, $146,000.
N. Y., Galway—Town, 40.2 mi. roads, $281,400.
N. Y., Greenfield—Town, 19 mi. roads, $133,000.
N. Y., Lancaster—Town, 12.99 mi. roads, $154,560. CD 11/2/44.
N. Y., Milton—Town, 30.7 mi. roads, $214,800.
N. Y., Moreau—Town, 23 mi. roads, $161,000.
N. Y., Northumberland—Town, 17.2 mi. roads, $120,400.
N. Y., Saratoga—Town, 31.1 mi. roads, $217,700.
N. Y., Sheldon—Town, 31.75 mi. roads, $109,400.
N .Y., Stillwater—Town, 22 mi. roads, $154,000.

N. Y., Ticonderoga—Town, 11.55 mi. roads, $101,333.
N. Y., West Seneca—Town, 10.935 mi. roads, $385,785.

▲ **NORTH CAROLINA**—State Hy. and Pub. Wks. Comm., Raleigh:

Alleghany Co.—12 mi. new highway from Laurel Springs to Virginia State Line near mouth of Wilson, Va., $200,000.

Avery Co.—3 mi. new highway U.S. 19-E, between Elk Park and Tennessee State line along the old roadbed of "Tweetsie" railroad, $150,000.

Buncombe Co.—relocation about 1 mi. in and around city of Asheville on the Leicester Rd., N.C. 63, $100,000.

Cabarrus and Rowan Counties—11 mi. 2 addnl. lanes U.S. 29 between Concord and China Grove, $600,000.

Caldwell and Catawba Counties—9 mi. wid'n. and resurf. U.S. 321 between Lenoir and Hickory, $250,000.

Cherokee Co.—wid'n. and resurf. 15 mi. U.S. 19 between Murphy and Andreas, $378,235.

Davidson Co.—2 addnl. lanes 7 mi. U.S. 29 between Thomasville and Lexington, $700,000.

Jackson Co.—wid'n. and resurf. 2 mi. N.C. 107 between Sylva and Cullowhee, $250,000.

Martin Co.—wid'n. and relocation 17 mi. U.S. 64 between Williamston and Washington Co. line, $450,000.

McDowell and Buncombe Counties—8 mi. four-lane hy. U.S. 70 between Old Fort and Ridgecrest supplement to present appropriation, $700,000.

Surry Co.—wid'n., resurf. 8 mi. US 52 between Mount Airy and Pilot Mountain, $300,000.

Swain and Graham Counties—new highway approx. 6 mi., from Fontana to Brock, providing shorter route from Bryson City to Fontana, $600,000.

Wake and Durham Counties—grading, structures for 2 addnl. lanes 19.7 mi. U.S. 70 between Raleigh and Durham, $1,000,000.

Washington and Tyrrell Counties—wid'n. and some relocation 20 mi. U.S. 64 between Roper and Columbia, $300,000.

wid'n., resurf. 15 mi. U.S. 23 between Franklin and Georgia State Line, $450,000.

7 mi. new highway from Tennessee line to Fines Creek on Pigeon River, $500,000.

Okla., Oklahoma City—City, City Hall, traffic interchange at N.W. 50 and Western Sts., $200,000.
M.E. Chase, city engr.

Tex., Baytown—City, bond election Sept. 22. Job & street improvs. paving, $500,000. George M. Hillyer, city engr. CD 5/3.

Tex., Ellington Field—Harris Co. Courthouse, Houston, 120 ft. width reinf.-con. road between Ellington Field and Gulf Freeway, $400,000. Hugo Zapp, co. engr.

† **Tex., Fort Hood**—U. S. Eng., 606 Santa Fe Bldg., Galveston, roads and area parking paving, for General Army area, $100,000.

▲ **Tex., Henderson**—Rusk Co. c/o Comrs. Court, Henderson, general road improvs., Precincts 1, 2, 3, and 4, $375,000 each.

Que., Val D'Or—Town, O. Tetrault, mayor, paving 11 streets, etc. Approx. $154,825. P. E. Gagnier, c/o owner engr.

EARTHWORK, WATERWAYS

Idaho, Murphy—Opaline Irrigation Dist., Murphy, pumping sys. to obtain water from Snake River and constr. lateral sys. $100,000.

▲ **Pennsylvania**—Dpt. Forests & Waters, Harrisburg, stream clearance and desilting of Clarion River in Western Pennsylvania. $5,000,000.

Man., Dauphin—Govt. of Canada, Dpt. Agriculture, Ottawa, Ont., land reclamation project in Dauphin Dist. $160,000.

N. B., St. John—Dpt. P. Wks., Ottawa, Ont., harbour protection at St. Marys on Shippigan Island. Approx. $100,000. R. Blais, c/o owner, engr.

Ont., Brantford—Govt. of Canada, Dpt. Agriculture, Ottawa, land reclamation, project Shores of Lake Erie, $100,000. Dpt. P. Wks., Hunter Bldg., Ottawa, engr.

Neb., Beatrice—Gage Co., organizing sanitary distr. and construct levees, remove 2 dams, cut a channel for Blue River, etc. to relieve flood conditions near here, $100,000. R. N. Towl, 506 S. 57 St., Omaha, consult engr.

AIRPORTS

▲**Ill., Chicago**—HANGAR—T. W. A., Inc., Municipal Airport, Kansas City, Mo., hangar at Midway Field, $2,200,000.

▲† **Mass., Bedford**—RESEARCH LABORATORY—U. S. Eng., 857 Commonwealth Ave., Boston, electronics research laboratory, geophysics laboratory, on 200 acres, adjacent to Hanscom Airport, $20,000,000, Massachusetts Institute of Technology, 77 Massachusetts Ave., Cambridge, operators.

▲† **Pa. Lancaster**—AIR FIELD—U. S. Air Force, Middletown Air Depot, Middletown, construct air field in Lancaster Co., to supplement Middletown Air Depot as service center for AAF in eastern region, $62,000,000. L. P. Kooken Co., Carlisle Theater Bldg., W. High St., Carlisle, consult. engr.

▲† **Pa., Middletown**—AIR FIELD—U. S. Air Force, Middletown Air Depot, Middletown, convert Middletown Air Field into supply depot for AAF, $12,000,000. L. P. Kooken Co., Carlisle Theater Bldg., W. High St., Carlisle, consult. engr. CD 3/20.

▲† **Tex., Dallas**—AIR BASE—U. S. Govt., c/o Hensley Naval Air Station, Dallas, field paving and lighting, $700,000; shop, $150,000; misc. constr. $1,200,000; barracks or housing, $500,000; storage or warehousing, $450,000; water sys. improvs., extens., $50,000; sewers, $75,000. Hensley Air Force Base.

▲† **Tex., Kingsville**—AIR STATION—U. S. Govt., c/o Office in Charge of Construction, Naval Air Station, Corpus Christi; misc. constr. $2,500,000; shop, $200,000; field paving, $500,000; housing, $700,000; water sys., $45,000; road constr. and paving, $70,000; sewers, $65,000 at NAAS.

▲† **Tex., Lackland Air Base (Br. San Antonio)**—AIRPORT—U. S. Eng., 606 Santa Fe Bldg., Galveston, drainage, $90,000; natural gas distr. sys. $85,000; area lighting, $100,000; sites earthwork, $150,000; storage and warehousing, $2,500,000; barracks, $8,000,000; mess halls, $3,000,000; airfield and area paving, $5,500,000; academic bldgs., $2,000,000; administration-operational bldgs., $1,500,000; misc. constr. $9,000,000; water sys. $75,000; sanitary sewers, $100,000; storm sewers, $90,000. CD 5/2.

▲† **Tex., Lubbock**—AIR BASE—U. S. Eng., Box 1538, Albuquerque, N. M., airfield paving, $400,000; sewers, $60,000; fueling sys. and storage $100,000; shop, $125,000; housing or barracks, $302,000, at Reese Air Force Base. CD 7/21/49.

▲† **Tex., Sherman**—AIR BASE—U. S. Eng., 1127 Texas and Pacific Bldg., Fort Worth, airfield paving, $700,000; housing or barracks, $525,000; shop, $145,000; lighting, $75,000; storage, $250,000; misc. constr., $350,000; water sys. improvs., $55,000; sanitary sewers, $65,000, at Perrin Air Force Base. CD 2/16.

▲ **B. C. Victoria**—RADAR BLDG., etc.—Govt. of Canada, Dpt. National Defence AIR, Cartier Sq., Ottawa, Ont. radar and recreation bldgs. Approx. $1,000,000. Defence Constr. Ltd., 70 Lyon St., Ottawa, Ont., engr.

Man., Rivers—STORAGE DEPOT—Govt. of Canada, Dpt. National Defence AIR, Cartier Sq., Ottawa, Ont., storage depot, etc. $300,000. Defence Constr. Ltd., 70 Lyon St., Ottawa, Ont. engr.

Man., St. James—HOUSING—Dpt. National Defence AIR, Cartier Sq., Ottawa, Ont., housing, $500,000. Defence Constr. Ltd., 70 Lyon St., Ottawa, Ont., engr.

LATIN AMERICA

Mexico, Junta Abrejos—Industrializadora de Productos del Mar, S.A., c/o Col. J. G. Cavazos Direccion conocida, Junta Abrejos, B. C., Mexico, plans shark products factory. $500,000.

Mexico Merida—Henequeneros de Yucatan, direccion Concocida, Merida, plans 1,000 houses for henequen laborers, $462,000.

▲ **Mexico, Mexico City**—National Railways of Mexico, Bolivar 21, Mexico City, plans by Jorge L. Medellin, Chapultepec 87, Mexico City, 10 story general offices bldg. $1,500,000.

Mexico, Mexico City—Sulfato de Viesca, S.A., Lopez, 35 Mexico City, plans anhydrous sulphate of sodium factory. $300,000.

Mexico, Penjamo—Ibermex, S. A. Direccion Conocido, Penjamo, Guanajuato, plans meat packinghouse. $250,000.

▲ **Mexico, Poanas**—Mexican Govt., Srio. de R. H. Paseo de la Reforma, 69, Mexico City, plans derivation canal to irrigate 70,000 acres. $3,000,000.

Mexico, San Andres Tuxtla-Prof. Adalberto Coto Linares & Assoc., Direccion Conocido, San Andres Tuxtla, Ver., Mexico, plans 50-room hotel. $500,000.

PUBLIC BUILDINGS

Ark., Malvern—HOUSING—Carroll Cuffman, Malvern, housing, $600,000.

Calif., Barstow—HOUSING—San Bernardino Co. Housing Auth., 440 Crestview St., plans by J. Dewey Harmish, 222 W. B St., Ontario, 60 unit low rent housing $500,000.

Calif., Concord—SCHOOL—Mt. Diablo Unified School Dist., Grant St., plans by Reynolds & Chamberlain & Assocs., 3833 Piedmont Ave., Oakland, Pleasant Hills, Intermediate School, Gregory Lane North of Diablo Vista School, $550,000. CD 12/15/49.

Calif., Pittsburg—GYMNASIUM—Pittsburg City School Dist., Pittsburg, Junior High School girls gymnasium and classroom bldg. $300,000. CD 7/13/50.

Calif., San Francisco—SCHOOL—Bd. Educ., City Civic Auditorium, plans by Donald Beach Kirby & Thos. B. Mulvin, 461 Market St., Twin Peaks Elementary School, $400,000. CD 11/17/48.

▲ **Calif., San Mateo**—SCHOOL—San Mateo City Elementary School Dist., San Mateo, voted $5,300,000 bonds school construction.

Calif., Vallejo—SCHOOL—Vallejo City Unified School Dist., 640 Carolina St., plans by Jack Buchter, 41 Moraga Highway, Orinda, Calif., new high, Highway 40 north of Springs Rd. $395,000. CD 5/16/50.

Conn., Manchester—SCHOOL—Town Bd. Educ., Town Hall, brick, steel concrete, Manchester Green Area Elementary School, $500,000.

Conn., Middletown—SCHOOL—City Bd. Educ., plans by Guy Francis Lamb, 252 Main St., 2 story, masonry Central School, $500,000. CD 2/12.

Fla., Bradenton—HOUSING—Bradenton Housing Auth., Bradenton, plans by Franklin O. Adams, 404 Franklin St., Tampa, 120 housing units for colored, $900,000.

Ill., Aurora—SCHOOL—East High School Dist. 131, 56 Jackson St., plans by Jos. C. Llewellyn, 38 S. Dearborn St., Chicago, Zone 3, Dietrich School addn. $300,000.

Ia., Humboldt—SCHOOL—Bd. Educ., voted $270,000 bonds, school, $315,000.

Kan., Turner—SCHOOL—School Dist. 3, Wyandotte Co., Olathe, voted $572,000 bonds June 26, high school. CD 10/2/50.

▲† **Ky., Fort Campbell**—BUILDINGS—U. S. Eng., 810 W. Broadway, Louisville, 63 permanent type buildings, $34,688,000. J. S. Watkins, 145 E. High St., Lexington, consult. engr.-archt. CD 6-27.

▲† **Ky., Lexington**—WAREHOUSES, etc.—Dpt. Army, The Pentagon, Wash., D. C., warehouses, administrative bldgs., and other facilities at Blue Grass Ordnance Depot. $6,973,900.

▲† **Ky., Lexington**—WAREHOUSE—Dpt. Army, The Pentagon, Wash., D. C., 2 warehouses, salvage bldg., fire station, cable processing bldg. for Lexington Signal Depot. $6,037,000. CD 4/17.

▲ **Mass., Boston**—HOUSING—City Housing Auth. 210 Congress St., plans by Isidor Richmond & Carney Goldberg, 16 Arlington St., PHA Mass 2-10, 3 story, brick, steel concrete, 150-unit housing Pope's Hill Section. $1,400,000. CD 12/15/48.

▲ **Mass., Boston**—HOUSING—City Housing Auth. 210 Congress St., plans by Abbott Assoc. Inc., 231 State St., 3 and 6 story, bsmt., 654-unit veterans housing, Mt. Vernon St., Calf Pasture, Dorchester, $7,500,000. CD 12/15/48.

Mass., Holyoke—POWER PLANT—City, Gas & Electric Dpt., 70 Suffolk St., light and power plant gas works, River Bank, $150,000, Luke L. Nakashian, 31 St. James Ave., Boston, consult. engr.

▲ **Mass., Lawrence**—HOUSING—City Housing Auth., 56 Melvin St., plans by Melvin F. Coombs, 56 Central Ave., Lynn Mass., PHA-10-2, 2½ story, frame 209-unit HOUSING, Beacon Ave. and Andover St. $2,000,000. Chas. E. Cyr, 85 Mt. Vernon St., Lawrence, site engr. CD 4/30.

▲ **Mass., Lawrence**—SCHOOL—City Council, City Hall, school, $1,000,000.

Mass., Lincoln—SCHOOL—Town, Supt. Schools, plans by Anderson & Beckwith, 11 Beacon St., Boston, 1 story, masonry school addn. $350,000. CD 3/3/49.

Minn., Clarkfield—SCHOOL—Bd. Educ., Andrew O. Berkvam, clk., defeated $500,000 bonds, grade school. $548,000. H. H. Swanson, 500 Sexton Bldg., Minneapolis, archts. CD 1/8.

Minn., Elk River—SCHOOL, etc.—Bd. Educ., Amy Wilson, clk., plans by H. H. Swanson, 500 Sexton Bldg., Minneapolis, new grade school and high school addn. $465,000 bonds voted. CD 1/25/45.

Minn., St. Louis Park—SCHOOLS—Bd. Educ. H. R. Enevoldt, supt. voted $575,000 bonds July 2, high school addn. CD 3/28/50.

Miss., Indianola—SCHOOL—City, plans by E. L. Mahoney & Assoc., Milsaps Bldg., Jackson, high school, $300,000. CD 5/24.

Miss., Jackson—DINING HALL, etc.—Bd. Trustees Jackson College, 1325 Lynch St., dining hall, library, admin. bldg. classrooms, brick, concrete, steel constr. $500,000.

Mont., Sidney—HOUSING—Richland County Housing Project, Dr. C. O. Watkins, chn., plans by J. W. Pahl, 308½ Central Ave., Great Falls, housing, $460,000. CD 2/23.

▲† **Neb., Hastings**—BUILDING IMPRVS., etc.—Ninth Naval Dist., Great Lakes, Ill., building constr., improvs. to bldgs. and other improvs., Naval Ammunition Depot. $20,281,400.

Neb., Holdredge—PLANT—City, light plant bldg. extens., improvs. and new equip. Approx. $100,000. Fulton & Cramer, 922 Trust Bldg., Lincoln, consult. engrs. CD 10/16/50.

Neb., Sidney—SCHOOL—Bd. Educ., Sidney, plans by F. N. McNett, Grand Island, school at Sioux Ordnance Depot. $300,000.

▲† **N. J., Edgewater**—SUPPLY DEPOT—Bureau Yards & Docks Annex, Navy Dpt., Arlington, Va., Naval Supply Depot. $1,375,000.

▲† **N. M., Camp Wingate**—BUILDINGS, etc.—U. S. Eng., Box 1538, Albuquerque, ordnance bldgs., $1,500,000; shop, $600,000; misc. constr., $750,000, at Wingate Ordnance Depot.

Okla., Enid—AUDITORIUM—Phillips University, Enid, plans by Dow Gummerson, Enid, auditorium. $750,000.

▲ **Pa., Ellwood City**—HOUSING—Lawrence Co. Housing Auth., New Castle, plans by The Thuyer Co., 408 Greer Bldg., 100 units housing. $1,250,000.

▲ **Pa., Fallsington**—SCHOOL—Falls Twp. Municipal Auth., Fallsington, school, Pennsbury School Dist. $1,100,000.

▲† **Pa., Natrium**—BLEACH PLANT—U. S. Eng., Madison Ave. and 8 St., W., Huntington, W. Va., brick, block, concrete steel joist supertropical bleach plant. $3,000,000. Guy B. Panero, 1336 N. Y. Ave., Wash., D. C., engr.

† **R. I., Newport**—HOSPITAL—Pub. Wks. Office, Naval Base, Newport, plans by Cull & Robinson, 811 Industrial Trust Bldg., Providence, 3 story brick hospital addn. to present operating wing, Naval Hospital. $620,000.

▲ **S. C., Gaffney**—HOUSING—Gaffney Housing Auth., Gaffney, 300 housing units, $2,500,000.

Tex., Angleton—HOUSING—Phillips Oil Co. (sponsors) Angleton, 100 employees housing units, $775,000.

▲† **Tex., Fort Hood**—BARRACKS, etc.—U. S. Eng., 606 Santa Fe Bldg., Galveston, barracks, $3,000,000; storage or warehousing, $2,500,000; equipment repair shop, $250,000; mess halls, $1,000,000; misc. constr., $3,250,000, for General Army area.

▲ **Tex., Houston**—APARTMENTS—College Manor Corp., c/o W. J. Setteyast, Jr., 1st Natl. Bank Bldg., Houston. Proj. 1, 48 frame apartment units, concrete slab fdn., off Hadley St. $384,000; Proj. 2, 50 apartment units, off Sauer St. $400,000; Proj. 3, 60 apartment units, off S. Main St. $480,000; Proj. 4, 40 masonry, frame apartment units, concrete slab fdn., $320,000; Proj. 5, 62 masonry apartment units, concrete slab fdn. $496,000.

▲ **Tex., Houston**—SCHOOL—St. Thomas University, 3812 Montrose Blvd., university school plant. $1,000,000.

Tex., Houston—DWELLINGS—Stauffer Chemical Co. (sponsor) M & M Bldg., 100 employees dwellings, $750,000.

Tex., Jefferson Lake (near Velasco)—HOUSING—Jefferson Lake Sulphur Co., (sponsors) Jefferson Lake, via Velasco, 100 housing units for plant employees. $700,000.

▲ **Wash., Seattle**—HOSPITAL—King Co., County-City Bldg., plans by T. Damm, 516 James St., Harborview hospital addn., $2,000,000. D. L. Evans, co. engr. CD 11/14/46.

▲ **Alta., Edmonton**—OFFICES, etc.—Govt. of Canada, Dpt. National Defence Army, Cartier Sq., Ottawa, Ont., offices, storage, workshops, water and sewerage system, supply depot, ordnance warehouse, central heating plant, for Royal Canadian Engineers. $2,000,000. Defence Constr. Ltd., 70 Lyon St., Ottawa, Ont., engr.

▲ **Alta., Wainwright**—CAMP DEVELOPMENT—Govt. of Canada, Dpt. National Defence, Cartier Sq., Ottawa, Ont., general scheme of development of camp. $2,000,000. Defence Constr. Ltd., 70 Lyon St., Ottawa, Ont., engr.

▲ **B. C., Chilliwack**—STORES, etc.—Govt. of Canada, Dpt. National Defence, Ottawa, Ont., stores, workshops, storage, central heating plant, water and sewerage systems. Approx. $2,000,000. Defence Constr. Ltd., 70 Lyon St., Ottawa, Ont., engr.

COMMERCIAL BUILDINGS

▲ **Ill., Chicago**—SCHOOL—St. Robert Bellarmine Parish, Meade Ave. and Eastwood St., plans by Edo J. Belli, 8 S. Dearborn St., Chicago, 3, Ill., 2 story brick, concrete, stone school addn. and convent, $500,000.

▲ **Minn., Golden Valley (Minneapolis P. O.)**—HOSPITAL—Glenwood Hills Hospital, R. T. Rascop, administrator, Golden Valley, 4 story hospital wing, $1,100,000.

N. J., Red Bank—CHURCH—First Presbyterian Church at Red Bank, Harding Rd. and Broad St., church, Harding Rd. $325,000.

N. Y., East Meadow (Hempstead)—STORES—Hyde Park Terrace, Inc., 201 Hillside Ave., New Hyde Park, stores, Bellmore Ave. north of Peach Lane. $356,000.

N. Y., Jamaica—APARTMENT—Breberg Associates, Inc., c/o A. H. Salkowitz, 37-60 82 St., Jackson Heights, 6 story apartment, Home Lawn St. S.E. C. of Cedarcroft Rd. $350,000.

N. Y., New York—OFFICE—Pace College, 255 Broadway, Zone 7, plans by F. P. Platt & Bros., 101 Park Ave, Zone 17, altering 16 story office, 39-41 Park Row, $500,000.

N. Y. Rochester—CHURCH—Third Presbyterian Church, East Ave. and Meigs St., church at site, $309,957.

N. Y., Syracuse—STORES—Nottingham Realty Corp., 1229 N. Salina St., stores, 4105-4155 S. Salina St. $450,000.

▲ **Pa., Pittsburgh**—APARTMENTS—Windgap Apartments, Inc., 701 Washington Rd., Mt. Lebanon, plans by A. E. Tennyson, 666 Washington Rd., 1 story, bsmnt., 25x90 ft., each, brick veneer apartments. $1,500,000.

Tex., Bryan—HOSPITAL—St. Josephs Hospital, Bryan, 65-bed hospital addn. $900,000.

INDUSTRIAL BUILDINGS

▲ **Ala., Anniston**—PLANT—General Electric Co., Red Rock Bldg., Atlanta, Ga., plans by Robert & Co. Assn., 96 Poplar St. N.W., Atlanta, Ga., electronic tube mfg. plant. $6,000,000.

Ark., Dardanelle—PLANT—Fox Deluxe Foods, Inc., 1122 W. Fulton St., Chicago, Ill., erecting, equip. plant. $100,000.

▲ **Ill., Waterloo**—PLANT—Mississippi River Fuel Corp., 407 9th St., St. Louis 1, Mo., construct 75,000,000 cu. ft. per day dehydration plant, an 1,800 h.p. compressor station and 12.6 mi. pipe line in conjunction with underground natural gas storage development here. $1,052,327.

▲ **Mich., Marshall**—FACTORY—Eaton Mfg. Co., F. J. Mott, genl. mgr., masonry 36,000 sq. ft. factory rotor pumps for military vehicles, $400,000, equipment $600,000.

▲ **Mo., St. Joseph**—PLANT—M F A Co-operative Grain Co., 429 Cherokee St., fertilizer plant, $1,000,000.

▲ **Tex., Houston**—PLANT—Schlumberger Co., 2730 Leeland St., Job 1, well supply plant bldg., $300,000; Job 2, well supply plant bldg. $250,000; Job 3, drilling supply shop $275,000; Job 4, supply plant maintenance bldg. $325,000; Job 5, well maintenance and supply storage, $225,000.

▲ **W. Va., Parkersburg**—MANUFACTURING—Eastern Rayon Mills, c/o Oscar Kohorn & Co., archts., 501 5 Ave., New York, N. Y., 2 concrete mfg. bldgs., one 4 story, other 1 story. $9,000,000.

UNCLASSIFIED

Alabama—RURAL DISTRIBUTION LINES—Cherokee Electric Co-operative, Centre, 50 mi. rural distr. lines, sys. imprvs., Cherokee Co. $200,000.

Alabama—RURAL DISTRIBUTION LINES—North Alabama Electric Co-operative, Stevenson, 150 mi. rural distr. lines, sys. imprvs., Jackson Co. $425,000.

Ark., Little Rock—COLISEUM—Arkansas Livestock Show Assn., Show Grounds, plans by Erhart, Eichenbaum & Rauch, Wallace Bldg., complete coliseum bldg. $300,000.

Idaho—RURAL DISTRIBUTION LINES—Northern Lights, Inc., Sand Point, 45 mi. rural distr. line and sys. imprvs., Bonner Co. $240,000.

Florida—RURAL DISTRIBUTION LINES—Escambia River Electric Co-operative, Jay, 21 mi. 44 kv rural distr. lines, 13 mi. tie line and related sub-stations, Escambia Co. $390,000.

Indiana—RURAL DISTRIBUTION LINES—Southern Indiana Rural Electric Co-operative, Tell City, 66 mi. rural distr. line and sys. imprvs., Spencer Co. $200,000.

Minnesota—RURAL DISTRIBUTION LINES—Anoka County Co-operative Light & Power Assn., Anoka, distr. lines and sys. imprvs. $145,000, Ellerbe & Co., E. 505 First National Bank Bldg., St. Paul, consult. engrs. CD 7/14/50.

Mississippi—RURAL DISTRIBUTION LINES—East Mississippi Electric Power Assn., Meridian, 513 mi. rural distr. lines and other imprvs. in Clarke and Lauderdale Counties, $815,000. Allen & Hoshall, 65 McCall Pl., Memphis, Tenn., consult. engrs. CD 10/22/47.

Mississippi—RURAL DISTRIBUTION LINES—Four County Electric Power Assn., Columbus, 250 mi. rural distr. lines and other system imprvs., Oktibbeha Co., $415,000. Allen & Hoshall, 65 McCall Place, Memphis, Tenn., consult. engrs.

Montana—RURAL DISTRIBUTION LINES—Lower Yellowstone Rural Electric Assn., Sidney, 209 mi. rural distr. lines, sub-station, Richland Co. $345,000. CD 5/27/49.

▲ **Missouri, Illinois, Indiana and Ohio**—GAS LINE—Panhandle Eastern Pipe Line Co., 1221 Baltimore St., Kansas City, Mo., increase gas facilities, 50,000,000 cu. ft. daily, 6.5 mi. 26 in. line east of Houstania, Mo., 7.2 mi. of the 61.5 mi. segment of 30 in. line east of Zionville, Ind., 18.2 mi. 26 in. line from Edgerton Station eastward into Ohio, $3,085,000.

Okla., Altus—ELECTRIC SYSTEM—City, rebuilding electric distr. sys. $175,000. Hardin White, Altus, engr.

CONSTRUCTION REPORTS-Second Section

NEW ENGLAND

BIDS ASKED—BUILDINGS

Mass., New Bedford—SCHOOL—B.A. 8/2—City, Supt. Schools, Vocational High School, 415 Ash St. Bids 2/8 rejected. CD 5/10, under LB.

Mass., Norfolk—LABORATORY—B.A. 8/9—State, Dpt. Pub. Health, State House, H-203, Contr. 1, out patient, X-ray and laboratory bldg., Pondville State Hospital. Bids 3/2 rejected. CD 3/29, under LB.

Conn., Stamford—SCHOOL ADDN.—B.A. 8/2—Bd. Educ., 151 Broad St., Julia Stark Grammar School addn., $600,000. CD 6/7.

Conn., Darien—SCHOOL ADDNS., etc.—B.A. 8/3—Bd. Educ., Renshaw Road, Darien Junior High School addns., alterations, 204 Hollow Tree Ridge Rd., $800,000. CD 6/21.

R. I., Providence—TEMPLE, SCHOOL—B.A. 8/15—Temple Bethel, 688 Broad St., temple and school, Orchard Pl. and Butler Ave. Plans deposit $100; Samuel Lerner Assoc., 145 Wayland Ave., archt. CD 7/9.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Stewart & Williams, Inc.**, 185 Water St., Augusta, Me. and **T. W. Cunningham, Inc.**, 38 Columbia St., Bangor, Me. CA $1,100,000. rehabilitate air base bldg. and facilities, PRESQUE ISLE, ME., U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Eaton W. Tarbell & Assoc., 84 Harlow St., Bangor, Me., archts. CD 6/21.

▲ **Jefferson Constr. Co.**, 75 First St., Cambridge, Mass. CA $775,000. readiness hangar, bldg., alert hangar, Westover Air Force Base, CHICOPEE, MASS., U. S. Eng., 857 Commonwealth Ave., Boston, Mass. CD 7/9, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **The Wadhams & May Co.**, 15 Lewis St., Hartford, Conn., LB $1,058,880. New Chamberlain Elementary SCHOOL, NEW BRITAIN, CONN., City Supt. of Schools, New Britain, Conn. Bids July 12. CD 7/6.

▲ **Platt Constr. Co., Inc.**, 99 First St., Cambridge, Mass. CA $3,007,020. HOUSING Proj. PHA 6-3 off Locust St., FALL RIVER, MASS., Fall River Housing Auth., 151 Sunset Hill, Fall River, Mass. CD 7/9, under LB.

▲ **J. J. Powers Co.**, 238 Main St., Cambridge, Mass. CA $1,534,400. Senior High SCHOOL, Waltham St., LEXINGTON, MASS., Town High School Bldg., 1475 Massachusetts Ave., Lexington, Mass. Awarded July 10. CD 6/21, under LB.

▲ **Thomas Worcester Inc.**, 84 State St., Boston, Mass. CA $1,000,000. design and constr. FACTORY, North Woburn, WOBURN, MASS., Sylvania Electric Products, Inc., 70 Forsyth St., Boston, Mass. CD 3/22.

▲ **State P. Wks. Comn.**, Hartford, Conn., rejected bids June 20, vocational technical SCHOOL, L. B. $1,477,500. WATERBURY, CONN. CD 7/6, under LB.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

N. Y., New York—H.A. 7/30—President Bronx Boro, Bronx County Bldg., 851 Grand Concourse, Zone 51, combined sewer and appurtenances, Emerson, Schley, Balcom, Dewey and Manton Aves.

N. Y., New York—PLAYGROUND—B.A. 7/31—New York City Housing Auth., 63 Park Row, Zone 38, playground in the area bounded by Cruger Ave., Magenta St., Holland Ave. and property line south of the site, Proj. No. NYC-9 of the Gun Hill Houses. Plans deposit $24.

NEW JERSEY—B.A. 8/7—State Hy. Dpt., State Hy. Office Bldg., 1035 Parkway Ave., Trenton, N. J. **Atlantic Co.**—constr. 0.739 mi. Tilton Rd. from State Highway Route 4 to Shore Rd., City of Northfield, Federal Aid Secondary Proj. S-9 (4). Plans deposit $10. R. J. Abbott, state hy. comr. Adv. ENR 7/26.

BIDS ASKED—BUILDINGS

N. Y., Flushing—HOUSING IMPRVS.—B.A. 8/1—New York City Housing Auth., 63 Park Row, Zone 38, construct street and yard imprvs. for Pomonok Houses, Proj. NYC-22 in area bounded by 71 Ave., Kissena Blvd., 65 Ave. and Parsons Blvd., Queens Boro. Plans deposit $25.

N. J., Dover—HOSPITAL—B.A. 8/1—Dover General Hospital, Jardine St., Hospital addn., $750,000.

N. Y., Syracuse—HIGH SCHOOL—B.A. 8/1—Comr. Contract & Purchase, 218 City Hall, William Nottingham High School on E. Genesee St., Extended date. CD 7/6.

N. J., Glen Ridge—SCHOOL ADDN.—B.A. 8/6—Bd. Educ., 3 High St., Glen Ridge, High School addn., $600,000. CD 12.29/50.

Pa., Sharpsville—SCHOOL—B.A. 8/9—School Dist. of South Pymatuming Twp., R. D. 1, Transfer, 1 story 200x62 and 100x145 ft., brick on tile grade school, State School Auth. Proj., 102-125. $300,000. The Thayer Co., Greer Bldg., New Castle, archt. CD 1/8.

† **D. C., Wash.**—TURBO GENERATOR—B.A. 8/16—General Services Admin., P. Bldg. Service, Wash., D. C., furnishing and installing turbo-generator educational unit and electric and hydraulic dynamometers in new engineering bldg. at Howard University.

▲ **Pa., Mt. Lebanon**—HOSPITAL—B.A. 8/13—St. Clair Memorial Hospital, Mt. Lebanon, 1 story bsmt., 188x244 ft., brick, concrete, steel frame, hospital. $1,350,000. Kuhn & Newcomber, 470 Washington Rd., Pittsburgh Zone 16, archts. CD 11/14/45.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEW YORK**—Dpt. P. Wks., Albany, N. Y., **Charles F. Vachris, Inc.**, 9018 Ditmars St., Brooklyn, N. Y., CA, $2,779,972. est. $2,855,000. 3 structures and 0.28 mi. rein.-con. pavement on Van Wyck Expressway, incl. 105 ft. span concrete arch grade separation structure at Union Turnpike (westbound) a through plate girder grade separation structure at Grand Central Parkway (south-bound) a through plate girder structure at Independent Subway Yards, Queens, Co. Bids June 6. CD 6/12, under LB.

Charles F. Vachris, Inc., 827 Remsen Ave., Brooklyn 12, N. Y., CA, $784,950. land piers and relieving platforms in Brooklyn and Queens Boros for New Vernon Avenue bridge over Newtown Creek, BROOKLYN, N. Y. Dpt. P. Wks., Municipal Bldg., New York 7, N. Y. Bids May 16. CD 6/1, under LB.

▲ **Clevens Corp.**, 64 Calyer St., Brooklyn 22, N. Y., CA, $3,576,474. Contr. 3, Manhattan Approach, Contr. 4, Brooklyn approach for reconstruction of approaches of Brooklyn Bridge over East River between Manhattan and Brooklyn Boros, NEW YORK and BROOKLYN, N. Y. Dpt. P. Wks., Municipal Bldg., New York 7, N. Y. Bids June 1, Awarded July 10. CD 5/25.

▲ **NEW YORK**—Dpt. P. Wks., Albany, N. Y., **Roman Landscape Contg. Co. Inc.**, 1611 E. 233 St., New York, N. Y., CA, $1,169,968. est. $1,180,000, landscaping, install signs and benches, etc. 5.63 mi. Bronx River Parkway, southern extens. from Story Ave., northerly to point just within Westchester Co. Bronx and Westchester Counties. Bids June 6. CD 6/12, under LB.

▲† **Harrison Const. Co.**, 1101 Western Ave., Pittsburgh, Pa., LB. $1,250,025. Schedule B, runway and taxiways exten. Greater Pittsburgh Airport, 19,800 lin. ft., clearing and grubbing, 597,000 cu. yds. grading, 85,000 sq. yds. concrete, Inv. No. Eng. 36-109-52-199, PITTSBURGH, PA. U. S. Eng., 121 N. Broad St., Phila. 1, Pa. Bids July 10. CD 6/29.

▲† **Cramer-Vollmerhausen Co., Inc.**, 2601 Connecticut Ave., N. W., Wash., D. C., LB, $1,605,286, 30 million gallon clear-water basin at Dalecarlia Filter Plant, Wash., D. C. U. S. Eng., First and Douglas Sts. N. W., Wash., 25, D. C. Bids July 17. CD 7/9.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Witaka Constr. Co. Inc.**, 11 E. 44 St., New York 17, N. Y., CA. $16,425,000, general constr.

Jesse E. Kahn, 131 W. 21 St., New York 11, N. Y., CA $2,083,678, plumbing

Dierks Heating Co., 43-32 33 St., Long Island City, N. Y. CA $1,798,415, heating and ventilating

ARC Electrical Constr. Co. Inc., 739 Second Ave., New York 16, N. Y., and **RAO Electric Equip. Co.**, 150 E. 41 St., New York 17, N. Y., CA, $1,817,140; electric for East Harlem General HOSPITAL (Metropolitan Hospital Replacement) 97 to 99 Sts., 1 to 2 Aves., Manhattan Proj., NEW YORK, N. Y. Dpt. P. Wks., Municipal Bldg., New York 7, N. Y. Bids May 29. CD 6/1, under LB.

▲ **George A. Fuller Co.**, 597 Madison Ave., New York 22, N.Y. CA. Approx. $5,000,000. 4 story OFFICE and store bldg. on site fronting on W. 34 and W. 33 Sts., between 6 and 7 Aves., NEW YORK, N. Y. Webb & Knapp, Inc., 270 Park Ave., New York 17, N. Y., Rudolph C. P. Boehler, c/o owner, archt.

H. B. Alexander & Son, 315 Vaughn St., Harrisburg, Pa., CA. $550,000. est. $500,000. HIGH SCHOOL addn., CAMP HILL, PA. Camp Hill School Bd., Boro Hall, Camp Hill, Pa., Bids May 8, Awarded July 12, CD 5/15, under LB.

▲ **Navarro Corp.**, 6219 Broad St., Pittsburgh 6, Pa., CA. $1,922,000. general constr. HOSPITAL bldg. for continued care patients and DIETARY bldg. for Hollidaysburg State Hospital, HOLLIDAYSBURG, PA. General State Auth., 18 and Herr Sts., Harrisburg, Pa. Bids June 13. Awarded July 10. CD 6/18, under LB.

▲ **Floyd B. Mousley**, 1018 Spruce St., Phila., Pa., Separate Contracts, $2,250,000. RESIDENTIAL DEVELOPMENT, MacDade Blvd., etc. WOODLYN, PA.

▲† **Standard Constr. Co.**, 1010 Vermont Ave. N.W., Wash., D. C., LB, $3,193,693, Stanton DWELLINGS housing project, 348 units, WASH., D. C. National Capitol Housing Auth., 1737 L St. N.W., Wash., D. C. Bids July 18.

SOON LETS CONTRACT—BUILDINGS

▲ **N. Y., Farmingdale**—FACTORY, LABORATORY, etc.—B.A. 7/17—Republic Aviation Corp., Conklin St., Farmingdale, soon lets contract, factory, laboratory and hangar at jet airplane plant. $1,500,000. Marr & Holman, Stahlman Bldg., Nashville, Tenn., engrs.

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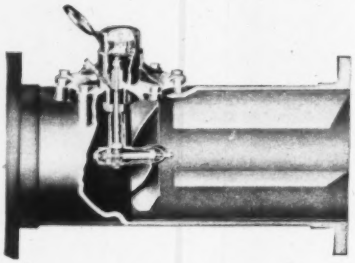

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SOUTH

LOW BIDDERS—HEAVY CONSTRUCTION

Miss., Alcorn—B.A. 8/2—State Building Comm., Jackson, drill water well at Alcorn A. & M. College.

† Fla., Orlando—SEWAGE TREATMENT, etc.—B.A. 8/7—U. S. Eng., P. O. Box 4970, Jacksonville, Fla., sewage treatment plant and water supply sys. at Pinecastle Air Force Base, Inv. 52-20. Bid date changed. CD 7/18.

La., New Orleans—GAS MAINS—B.A. 8/7—New Orleans Housing Auth., 500 California St., gas mains for St. Thomas Street Housing Proj., LA 1-9. Plans deposit $15. CD 9/15/49, under Public Bldgs.

† Fla., Orlando—PAVING ROADS, etc.—B.A. 8/8—U. S. Eng., P. O. Box 4970, Jacksonville, Fla., paving roads and parking areas at Pinecastle Air Force Base, Inv. 52-19. Extended date. CD 7/18.

N. C., Belmont—B.A. 8/9—Town, L. A. Brown, mayor, water and sewer imprvs., 3 mi. 8 in. sanitary sewers, 2 sewage pump stations, etc. Plans deposit $10. Platt & Davis, Durham, engrs.

La., Bastrop—B.A. 8/14—Town, sewage disposal plant addns. Plans deposit $10, Pan American Engineers, 1418 3 St., Alexandria, engrs.

La., Buras—B.A. 8/14—Buras Waterworks Dist., 14 mi. water distr. lines. Plans deposit $25. S. V. Applewhite, 424 Millaudon St., New Orleans, engr.

N. C., Roxboro—B.A. 8/14—City, R. G. Long, mayor, Roxboro, WW imprvs. Plans deposit $25. Platt & Davis, Durham, engrs. CD 6/26.

† TENNESSEE—B.A. 8/14—Bureau P. Roads, Dpt. Commerce, Gatlinburg.

Sevier Co.—bridge over Dudley Creek, Proj. 15A4, Foothills Parkway. Plans deposit $10.

BIDS ASKED—BUILDINGS

Fla., Miami—SHOP, etc.—B.A. 7/31—Otis Elevator Co., c/o Stewart & Skinner, 223 S.E. 1 St., Miami, archts., shop and office.

N. C., Kinston—HOSPITAL—B.A. 7/31—State Hospital Bd. control, S. H. Stroud, bus. mgr., Kinston, 2 story tuberculosis hospital at Caswell Training School. Plans deposit $30 general const. $15 each mechanical. Eric G. Flannagan, Henderson, archt.

Ala., Birmingham—CHURCH—B.A. 8/6—Hunter Street Baptist Church c/o Geo. P. Turner, archt., American Life Bldg., Birmingham, Ala., church. Extended date. CD 7/5.

Fla., Coca—SCHOOL—B.A. 8/7—Brevard Co. Bd. P. Instruction, Titusville, Fla., high school. Plans deposit $25. Harry M. Griffin, P. O. Box 1671, Daytona Beach, Fla., archt.

† Ga., Camp Gordon—BLDGS.—B.A. 8/7—U. S. Eng., P. O. Box 889, Savannah, Ga., rehabilitation of 740 miscellaneous bldgs. Eng 09-133-52-67.

Tenn., Athens—HIGH SCHOOL—B.A. 8/8—McMinn Co., Athens, high school addn. Selmon T. Franklin, 427 Poplar St., Chattanooga, archt. CD 1/6/47.

▲ Ala., Selma—HOUSING—B.A. 8/8—U. S. Eng., Post Office Bldg., Atlanta, Ga., construct, manage and finance 225 HOUSING units, at Craig Air Force Base. Plans deposit $40. Extended date. CD 7/2.

N. C., Raleigh—HIGH SCHOOL—B.A. 8/9—Bd. Trustees Raleigh City Admin. Unit, Jesse O. Sanderson, sec.-supt., 228 New Bern Ave., Raleigh, Needham Broughton High School addn., St. Marys St. Plans deposit $50. Wm. H. Deitrick, 115 W. Morgan St., archt. CD 2/13.

Ala., Russellville—HOUSING—B.A. About 8/10—Russellville Housing Auth., Russellville, Projects ALA 60-1 and ALA 60-2 75 housing units, $600,000. Turner & Northington, Florence, Ala., archts.

† Va., Portsmouth—COVERED STORAGE—B.A. 8/14—Pub. Wks. Office, Headquarters, Fifth Naval Dist., U. S. Naval Base, Norfolk, Zone 11, construct warehouses with concrete fdns., structural steel frame, masonry walls, etc., incl. grading roads and railroads, outside services, etc. Spec. No. 26829, NOY 24655. Plans deposit $20.

N. C., Greensboro—CHURCH—B.A. about 8/15—First Presbyterian Church, c/o A. C. Woodruff, archt., Greensboro, church, $300,000.

Ga., La Grange—SCHOOL—B.A. 8/23—City, Southwest LaGrange Elementary School, Approx. $300,000. Poundstone, Ayers & Goodwin, Palmer Bldg., Atlanta, Ga., archts. CD 3/21/50.

† Ga., Atlanta—PROCESSING BLDG.—B.A. 8/27—U. S. Eng., Post Office Bldg., Savannah, Ga., engineer Equipment Processing bldg., Atlanta General Depot. ENG 09-133-52-8. Plans deposit $10.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ Dixie Constr. Co., 747 Wheaton St., Savannah, Ga. and Robert Lee, Inc., Manning, S. C., CA $819,913, site preparation for port facilities.

Byck-Worrell Constr. Co., 318 E. Bay St., Savannah, Ga., CA $1,435,985, building for port facilities, SAVANNAH GA. Georgia Ports Auth., 20 Ivy St. S.E., Atlanta, Ga. Bids July 10. CD 6/13, under LB.

▲ FLORIDA—State Hy. Dpt., Tallahassee, Fla. Duval Eng. & Constr. Co., P. O. Box 1588, Jackson-

ville, Fla., CA, $982,152, grading, paving one conc. underpass, structures, Rds. 10 and 115; Job 7204-178, Duval Co.; James H. Craggs Constr. Co., Ocala, Fla., CA, $567,638, grading, paving, structures, Road 30, from Aucilla River to Blue Springs, Job 3809-106 Taylor Co. Bids June 5. CD 6/15, under LB.

† Merritt Dredging Co., Berkeley Court Apartments, Charleston, S. C., CA, $141,000, dredging at Cape Canerval near here for joint proving ground Patrick Air Force Base, COCOA, FLA. U. S. Eng., 575 Riverside Ave., Jacksonville, Fla. CD 4/4.

Salchwell & Joseph Elec. Co., South Jacksonville, Fla., LB, $412,143, furnishing, installing three 700 kw emergency power units at Long Range Proving Grounds, Cape Canavaral, COCOA, FLA. U. S. Eng., 575 Riverside Ave., Jacksonville, Fla. Bids July 11. CD 6/29.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ Thompson & Street, Pineville Rd., Charlotte, N. C., LB, $1,612,000, HOSPITAL No. 5016, WINSTON-SALEM, N. C. North Carolina Baptist Hospital, c/o Schmidt, Garden & Erikson, 104 S. Michigan Ave., Chicago 3, Ill., archts. Bids July 10. CD 7/3.

▲ Southeastern Mortgage Co., 947 W. Flagler St., Miami, Fla., CA, $2,541,300, construct, manage and finance 392 unit Title 8 HOUSING at Green Cove Springs Naval Base, GREEN COVE SPRINGS, Fla., Dist. P. Wks. Office, Box 365, Naval Base, S. C. Bids June 21. CD 6/26, under LB.

▲ Siegfried Constr. Co., 6 North Pearl St., Buffalo, N. Y. CA, $6,000,000, 202x660 ft., electronic tube mfg. PLANT and 78x220 ft., office, ANNISTON, ALA. General Electric Co., Red Rock Bldg., Atlanta, Ga. CD 7/11.

▲ Mississippi Power & Light Co., Lampton Bldg., Jackson 5, Miss. Owner Builds. $3,000,000. Unit 2, SWEATT ELECTRIC GENERATING PLANT, MERIDIAN, MISS. A. F. McKenzie, c/o owner, constr. supt. CD 10/25/49.

M. W. Kellogg Co., 225 Broadway, New York 7, N. Y. CA. Fluid hydroforming unit PLANT with 800,000 gal. daily capacity, LAKE CHARLES, LA. Cities Service Oil Co., 70 Pine St., New York 5, N. Y.

Pines Constr. Co., 5868 Downman Rd., New Orleans, La. Owner Builds. $720,000. 90 HOMES, NEW ORLEANS, LA.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

† Ill., Scott Air Force Base—INSTRUMENT LANDING—B.A. 7/31—U. S. Eng., 520 Merchandise Mart, Chicago, 54, Ill., on base, instrument landing system localizer, glide path, boundary marker (b) off base, middle marker system. CD 3/16.

Wis., Milwaukee—B.A. 8/9—City, plate girder bridge over Menomonee River at N. 45 St., $65,000. Plans deposit $10. Lloyd D. Knapp, city engr. CD 12/3/43.

BIDS ASKED—BUILDINGS

▲ Ill., Rockford—HOSPITAL—B.A. 8/8—Rockford Memorial Hospital Assoc., 105 Douglas St., 5 story, 150,000 sq. ft. steel, concrete, brick hospital, $3,000,000. Paul F. Griffenhagen, 333 N. Michigan St., Chicago, Zone 1, structural engr. Hubbard & Highland, 303 N. Main St., Rockford, and Perkins & Will, 309 Jackson Blvd., Chicago, Zone 9, archts. CD 12/6/50.

O., Uniontown—SCHOOL—B.A. 8/8—Bd. Educ., E. T. Pressler, clk., Canton-Akron Rd., Uniontown, elementary school. Plans deposit $50. Firestone & Motter, 1412 Cleveland Ave., N. W., Canton Zone 3, archts.

Ill., Chicago—HOSPITAL ADDN.—Bids Asked—Edgewater Hospital, 5700 N. Ashland, Chicago, 40, Ill., 8 story, 75,000 sq. ft., brick, concrete hospital addn., $700,000. Edward P. Steinberg, 180 W. Washington St., Chicago, 1, Ill., archt. CD 10/23/50.

▲ Ind., Bloomington—B.A. 8/10—Bd. P. Wks., T. L. Lemon, chn., C. O. Stewart, secy., City Hall, Bloomington, waterworks system, Div. 1, stand pipe 74x62 ft., 2 mil. gal. capacity, alternate on 1½ mil. gal. 64x62 ft. Plans deposit $20.; Div. 2, distr. sys., 616 lin. ft. 16-in., 16,850, 12-in., 6,850 ft. 8-in. cli pipe. Plans deposit $10.; Div. 3, pumping station and filtration plant. Plans deposit $30.; Div. 4, clearing area, relocation of roadways, dam across Beam Blossom Creek, earth and rein.-con. Plans deposit $10. each branch; Div. 5 auxiliary supply mains. Plans deposit $10.; Div. 6, secondary distribution mains. Plans deposit $10. Consoer, Townsend & Assocs., 351 E. Ohio St., Chicago, Ill., consult. engrs. R. Buck, City Hall, city engr. CD 6/26.

▲ Ind., Fort Benjamin Harrison—BLDGS. etc.—B.A. 8/28—U. S. Eng., 540 Merchandise Mart, Chicago, 54, Ill., building and utilities, at Army Finance Center $18,000,000. CD 2/12.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ George C. Murphy Constr. Co., 519 Belmont Ave., Youngstown, O. CA est. $2,000,000, 80,000 sq. ft. PLANT addn., incl. equipment., YOUNGSTOWN, O. Republic Rubber Div., Lee Rubber & Tire Corp., 1940 Schultz St., Youngstown, O. C. E. McCormick, c/o owner, ch. engr. Certificate of necessity granted. CD 6/26.

▲ M. W. Kellogg Co., 225 Broadway, New York, 7, N. Y. CA, fluid hydroforming unit with 400,000 gallons daily capacity, EAST CHICAGO, IND. Cities Service Oil Co., 70 Pine St., New York, 5, N. Y.

▲ H. K. Ferguson Co., 1783 E. 11 St., Cleveland, O., CA, $20,000,000 Tippecanoe LABORATORIES, power plant, Elston, LAFAYETTE, IND. Eli Lilly & Co., E. Georgia St., Indianapolis, Ind. CD 6/29 under CA.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ Manhattan Constr. Co., Manhattan Bldg., Mishogee, Okla. CA $2,579,330, est. $3,000,000, 190x875 ft. airplane hangar at Boeing Plant, WICHITA, KAN. Boeing Airplane Co., Wichita, Kan. Awarded July 11. CD 7/6.

BUILDINGS

LOW BIDS AND CONTRACTS

Olson Const. Co., 410 S. 7 St., Lincoln, Neb., LB, $378,812, general constr. HISTORICAL bldg., LINCOLN, NEB., State Historical Society, 15 and R Sts., Lincoln, Neb. Bids July 11. CD 7/5.

▲ Dr. Judge M. Lyle, 3901 S. Westcliff Rd., Fort Worth, Tex., cancelled project indefinitely, 10 story bsmnt., 100-bed HOSPITAL and doctors offices bldg., FORT WORTH, TEX. est. $2,273,939. CD 6/11.

Campbell-Lowrie — Lautermilch Corp., 400 W. Madison St., Chicago, Ill., CA. Approx. $418,700, mfg. PLANT, IRVING, TEX. Lloyd A. Fry, Summitt, Ill.

▲ Baylor University, Waco, Tex., rejected bids July 10, L.B. $1,511,194, 10 story Tidwell BIBLE BLDG., WACO, TEX. CD 5/23.

▲ Eichleay Corp., 33 S. 19 St., Pittsburgh, Pa., CA $1,500,000, constr. BLAST FURNACE at Minnequa Mills, PUEBLO, COLO. Colorado Fuel & Iron Corp., Pueblo, Colo. CD 12/28/49.

Vasey Constr. Co., Carlsbad, N. M., CA, $350,000, 2 story OFFICE bldg., CARLSBAD, N. M. United States Potash Co., Carlsbad, N. M., Meem, Zehner, Hollen & Assoc., Box 628, Santa Fe, N. M., archts.

FAR WEST

BIDS ASKED—BUILDINGS

† Oregon—RESIDENCE AND UTILITY BLDG.—B.A. 8/3—U. S. Eng., Pittock Block, Portland, residence and utility bldg., Cottage Grove reservoir, CIVENG 35-026-52-8.

Calif., Berkeley—BOILER PLANT—B.A. 8/7—State Div. Architecture, P. Wks. Bldg., Sacramento, boiler plant, etc. at California School for Blind. Plans deposit $25.

Wash., Medical Lake—SCHOOL—B.A. 8/7—Housing and Home Finance Agency, New World Life Bldg., Seattle 4, Wash., 20-classroom elementary school for Fairchild Air Force Base, $600,000. Plans deposit $25. J. S. Villesvik, Larson Bldg., Yakima, archt.

Wash., Moses Lake—SCHOOL—B.A. 8/7—Housing & Home Finance Agency, Community Facilities Service, New World Life Bldg., Seattle 4, Wash., elementary school for Larson Air Force Base, $450,000. Plans deposit $25. H. A. Hovind & Assocs., 1500 Westlake Ave. N., Seattle, Wash., archt.

▲ Calif., Whittier—SCHOOL—B.A. 8/8—Whittier Union High School Dist., 610 W. Philadelphia St., school, $1,582,000. Wm. H. Harrison, 816 W. 5 St., Los Angeles, archts. CD 11/10/50.

† Calif., Muroc—WATER WELLS—B.A. 8/8—U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif., water supply wells 8 and 9 at Edwards Air Force Base, ENG 04-353-52-2. CD 4/5.

† Washington—B.A. 8/8—U. S. Eng., City-County Bldg., Walla Walla, Wash., sand stabilization, SP & S relocation, CIVENG 45-165-52-5, Benton Co. Col. W. H. Mills, City-County Airport, Walla Walla, engr.

Wash., Quincy—SCHOOL—B.A. 8/10—School Dist. 144, 1 story, frame school, $421,000. W. H. Rothe, 807 W. Yakima Ave., Yakima, archt.

Calif., Santa Ana—JUVENILE HALL—B.A. 8/14—Orange Co., Bd. Supvrs., Court House, Juvenile Hall addn., alterations, $300,000. Plans deposit $25. Gates W. Burrow, Pacific Bldg., archt.

Calif., San Diego—INDUSTRIAL ARTS—B.A. 8/14—State Div. Architecture, P. Wks. Bldg., Sacramento, Calif., industrial arts bldg. at San Diego State College. Plans deposit $25.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ Wm. P. Neil Co., 4814 Loma Vista St., Los Angeles, Calif., CA, $1,000,000, FOUNDRY and office bldg., POMONA, CALIF. American Brake Shoe Co., Wahwah, N. J.

J. E. Stark, 1131 E. "A" St., Ontario, Calif., CA, $376,130, Sunset SCHOOL ADDN., WEST COVINA, CALIF. West Covina School Dist., West Covina, Calif. Bids June 12. Flewelling and Moody, 322 Los Felizs Blvd., archts.

▲ William Simpson Constr. Co., 816 W. 5 St., Los Angeles, Calif., CA, $2,000,000, 4 story OFFICE, LOS ANGELES, CALIF. Massachusetts Mutual Life Insurance Co., 530 W. 6 St., Los Angeles, Calif. CD 7/2.

Holdener Constr. Co., 2608 R St., Sacramento, Calif., LB $388,900, constr. SCIENCE BLDG., Sacramento State College, SACRAMENTO, CALIF. State Div. Architecture, P. Wks. Bldg., Sacramento, Calif. Bids July 10. CD 6/11.

First Presbyterian Church, 1327 Locust St., Walnut Creek, Calif., rejected bids May 24, 2 units of new CHURCH, WALNUT CREEK, CALIF. Project temporarily abandoned. CD 5/18.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† Grafe-Callahan Constr. Co., 1 National Bank Bldg., Dallas, Tex., LB, $1,304,377, est. $403,265. Completion of architectural finished sand mixc. metalwork installations for Davis Dam and power plant, Davis Dam Proj., Spec. DC-3427. ARIZONA Bureau Reclamation, Dpt. Interior, Davis Dam, Ariz. Bids July 11. CD 6/27.

▲† Electric Constr. Co., 1650 Center St., Tacoma, Wash., LB $1,291,488, Inv. 5925 constr. 86.8 mi. Spokane-Hot Springs 230 kv line, WASHINGTON, IDAHO AND MONTANA. Bonneville Power Admin., 827 N. E. Oregon St., Portland, Ore. Bids July 12.

ALASKA

BIDS ASKED—HEAVY CONSTRUCTION

† Alaska — OUTSIDE UTILITIES — B.A. 7/31 — U. S. Eng., New Washington Hotel, Seattle 1, Wash., outside utilities, Inv. No. S95-507-51-125, Ladd Air Force Base, Plans deposit $25. Extended date. CD 6/26.

BUILDINGS

LOW BIDS AND CONTRACTS

† C. W. Hufeisen, 16430 Ambaum Blvd., Seattle, Wash., LB, $348,877, est. $336,535, 30 temporary HOUSES and utilities for Eklutna Proj., Spec. DC-3463, ALASKA, Bureau Reclamation, Dpt. Interior, Palmer, Alaska. Bids July 10. CD 6/28.

▲† J. H. Pomeroy & Co., Inc., 333 Montgomery St., San Francisco, Calif., LB, $1,983,000, est. $1,859,-896, composite ADMINISTRATION bldg., Inv. No. S95-507-51-106, FORT RICHARDSON, ALASKA. U. S. Eng., New Washington Hotel, Seattle 1, Wash. Bids July 12. CD 6/13.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Alta., Edmonton—B.A. 7/31—D. W. Laird, 400 Kensington Bldg., Winnipeg, Man., sewer system and services, water system and services, pumping station, paving etc. at Nameo Park Site, Defence Constr. Ltd., 70 Lyon St., Ottawa, Ont., engr.

Que., Bagotville—HEATING PLANT—B.A. 8/1—M. P. McAndrew, engr., Defence Constr. Ltd., 1526 Guy St., Montreal, Que., central heating plant, at R.C.A.F. Station, Approx. $240,000. Plans deposit $50.

Que., St. Hubert—HEATING PLANT—B.A. 8/1—M. P. McAndrew, engr., Defence Constr. Ltd., 1247 Guy St., Montreal, Que., central heating plant at R.C.A.F. Station. Approx. $300,000. Plans deposit $50.

BIDS ASKED—BUILDINGS

Ont., New Toronto—OFFICE—B.A. 7/30—N. A. Armstrong, archt., 19 Melinda St., Toronto, Ont., 2 story, bsmnt., 32x155-ft., rein.-con. frame, limestone, brick office Fabrikoid Division Bldg., for Canadian Industries Ltd., 25 St., New Toronto, Ont., Approx. $300,000.

BUILDINGS

LOW BIDS AND CONTRACTS

W. H. Cooper Constr. Co. Ltd., Hunter and Hughson Sts., Hamilton, Ont., CA. Approx. $450,000, 1 story, concrete, block, brick WAREHOUSE at Dundas and Third Sts., LONDON, ONT. International Harvester Co. of Canada Ltd., 208 Hillyard St., London, Ont. Bids June 29. CD 6/28.

▲ Robertson Constr. & Eng. Co. Ltd., Niagara Falls, Ont. Contract Awarded $1,016,000, LABORATORY bldg. for Division of Bldg. Research National Research Council, Montreal Road Laboratories, OTTAWA, Ont. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids May 29.

▲ W. H. Cooper Constr. Co., Ltd., Hunter & Hughson Sts., Hamilton, Ont., CA, Approx. $2,000,000, soap FACTORY EXPANSION incl. 3 buildings, HAMILTON, ONT. Procter & Gamble Co. of Canada Ltd., Burlington St. E., Hamilton, Ont. Wm. R. Souter & Assoc., 36 James St. S., Hamilton, Ont., archts. Awarded July 12.

▲ Carter Constr. Co., Ltd., 419 Cherry St., Toronto, Ont., CA $2,500,000, 2 story 160x450 ft., steel frame, rein.-con., ELECTRONICS BLDG. for Canadian Arsenals Ltd. Leaside, SCARBOROUGH, ONT. Defence Constr. Ltd., 441 Queens Quay W. Toronto, Ont. Bids June 26, awarded July 16. CD 6/11.

AMERICANS ABROAD

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† Arnold M. Diamond, 50 Court St., Brooklyn 2, N. Y. CA. $561,724, Long Bird-Hamilton Island Causeway Bridge at Kindley Air Force Base, Eng. 30-075-51-629, BERMUDA. U. S. Eng., 80 Lafayette St., New York 13, N. Y. CD 4/18.

OFFICIAL PROPOSALS

RATE: THE RATE FOR OFFICIAL PROPOSAL ADVERTISING IS $1.25 PER LINE (OR FRACTION) PER INSERTION.

COPY RECEIVED UP TO 3:00 P. M. THURSDAY FOR ISSUE OUT FOLLOWING THURSDAY SUBJECT TO SPACE OPEN FOR LAST MINUTE ADS

SEND COPY TO OFFICIAL PROPOSAL DIVISION, ENGINEERING NEWS-RECORD, 330 W. 42ND ST., NEW YORK 18, N. Y.

Bids: July 31, 1951

Heating and Ventilating Equipment

CONTRACT 327

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 10:00 A. M., Eastern Standard Time, on Tuesday, July 31, 1951, for Contract 327, for furnishing, delivering, installing and testing heating, ventilating and appurtenant equipment for the Roundout, West Branch and Kensico South effluent chambers, and heating equipment with appurtenances for the drainage chamber at Shaft 13, the coagulating plant at Shafts 17 and the Kensico comfort station, and for performing appurtenant miscellaneous construction, all as set forth in the specifications. The locations of the proposed work are in the Towns of Wawarsing, Ulster county, Carmel, Putnam county and Bedford, North Castle and Mount Pleasant, Westchester county, New York.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of The City of New York, in the amount of ten thousand dollars ($10,000.00), for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained in Room 1311, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, RUFUS McGAHEN, Commissioners, Board of Water Supply; RICHARD H. BURKE, Secretary.

Bids: August 16, 1951

Constructing Masonry Filters and Regulator House

CONTRACT 209A

SEALED PROPOSALS addressed to the Board of Contract and Supply of The Metropolitan District and endorsed "CONTRACT 209A—PROPOSAL FOR THE CONSTRUCTION OF MASONRY FILTERS AND REGULATOR HOUSE AT THE FILTRATION PLANT IN THE TOWN OF WEST HARTFORD, CONNECTICUT," will be received at the Executive Offices of The Metropolitan District, 115 Broad Street, Hartford, Connecticut, until 2:15 P.M., Eastern Daylight Saving Time, Thursday, August 16, 1951, at which time and place they will be publicly opened and read.

The work to be done consists of the construction of four ½-acre, earth covered masonry Filter Beds, of so-called groined arch type of construction, Regulator House and appurtenant structures at the Filtration Plant in West Hartford; the principal materials, except concrete and Regulator House superstructure materials, furnished by the District.

Approximate quantities for the principal items:

Earth refill and embankment	30,000 cubic yards
Filter gravel and sand	11,400 cubic yards
Concrete masonry	8,400 cubic yards
Placing reinforcing steel	110 tons

Drawings and Specifications may be obtained on and after July 19, 1951, at the Office of the Deputy Manager and Chief Engineer of The Water Bureau of The Metropolitan District, 115 Broad Street, Hartford, Connecticut, on deposit of twenty dollars ($20), in cash or certified or cashier's check, made payable to The Water Bureau of The Metropolitan District, which amount will be refunded if both are returned in good order within one month of date of opening of bids. No deposits will be refunded after that time. Specifications used in making a bid will be considered as returned.

Each proposal must be accompanied by a certified check for an amount covering not less than ten per cent, (10%) of the total amount bid, made payable to The Metropolitan District, or a bid bond in like amount, and a satisfactory surety bond, as stated in the Information for Bidders, for the total amount bid will be required of the successful bidder for the faithful performance of the contract.

BOARD OF CONTRACT AND SUPPLY,
By: Richard Dillon, Clerk.
Hartford, Connecticut,
July 13, 1951.

Sanitary Sewerage System

EWING-LAWRENCE SEWERAGE AUTHORITY

Sealed bids will be received by the Ewing-Lawrence Sewerage Authority (mailing address, 156 West State Street, Trenton 8, New Jersey) until two o'clock P.M., Eastern Daylight Saving Time, on the Twentieth day of August, 1951 at the Lawrence Township Hall on the Trenton-Princeton Road near West Church Road, for constructing a sanitary sewerage system in Ewing and Lawrence Townships, Mercer County, New Jersey, in accordance with the plans and specifications prepared by Buck, Seifert and Jost, Consulting Engineers, 112 East 19th Street, New York 3, New York.

Copies of the plans and specifications may be obtained either from the Authority or from the Consulting Engineers upon deposit of Fifty Dollars, which sum will be refunded upon return of the plans and specifications in good condition within twenty days after the date on which bids are received.

The work to be done includes furnishing the materials and performing the labor for constructing approximately 2,900 feet of 36 inch, 1,500 feet of 33 inch, 7,000 feet of 30 inch, 20,600 feet of 27 inch, 3,500 feet of 18 inch, 3,900 feet of 15 inch, 11,800 feet of 12 inch, 24,600 feet of 10 inch and 228,700 feet of 8 inch gravity sewers and 46,000 feet of 6 inch house connections. The work is divided into eight sections under which it is classified according to its character and location. Bidders will be allowed to bid on one or more sections or on a combination of sections.

Each proposal must be accompanied by a certified check or bid bond from a reliable surety company authorized to do business in the State of New Jersey and satisfactory to the Authority in amount equal to ten percent of the proposal, and by an agreement from a qualified surety company to execute the required performance bond in the event the bidder is awarded the contract.

The Authority reserves the right to consider bids for thirty days after their receipt before awarding any contract and to accept any bid or to reject any or all of them.

EWING-LAWRENCE SEWERAGE AUTHORITY
By: Wilfred F. Predhome
Secretary

Bids: October 1, 1951

Dredging

EGYPTIAN GOVERNMENT
MOHAMED ALY BARRAGE

Tenderers are invited by the Ministry of Public Works of the Egyptian Government for Dredging and relevant hand Works in Egypt within the period from 1st May 1952 to 30th April 1962.

The contract conditions shall be obtainable on or after July 1st 1951 at Mohamed Aly Barrage Office, Delta Barrage, or at the Royal Egyptian Embassies in London, Paris, Washington and at the Royal Egyptian Legation at Rome (Italy) and La Hague (Holland) and Egyptian Consulate at Frankfort (West Germany).

Only tenders from well known established firms who have previously executed similar works will be considered.

Established firms of Contractors desiring to tender may obtain copies of the said documents from either of the above offices against payment of L. E. 4 (equivalent to $11.50 in U. S. dollars) for each copy and upon making a written application therefore. This sum will in no way be refunded.

On or before submission of tender, a deposit equivalent to 2% (two per cent) of the value of the annual cubes cleared by dredgers and by hand shall be made.

The deposit will be held as a guarantee for the good faith of tenderers and the fulfilment of their obligations.

Tenders must be submitted to the Under-Secretary of State, Ministry of Public Works, Cairo, before midday of October 1st 1951.

U. S. Government

Department of Commerce, Bureau of Public Roads, July 18, 1951. SEALED BIDS will be received at the office of the Bureau of Public Roads, Gatlinburg, Tennessee, until 1:30 P.M., E.S.T., AUGUST 21, 1951, for the construction of Project 15A5, Foothills Parkway, Sevier County, Tennessee. Steel Beam Bridge over West Fork of Little Pigeon River. Length 0.03 mile. The approximate quantities of the more important items are 1,300 cu. yd. Cement Concrete, 165,000 lb. Reinforcing Steel, 286,000 lb. Structural Steel, and 178 cu. yd. Stone Masonry. Minimum wage rates have been fixed as required by law. For plans and specifications, a deposit of $10.00 cash or CERTIFIED check made payable to the Treasurer of the United States, will be required to insure their return within 15 days after opening of bids. Plans, specifications and proposal forms may be obtained from the office of the Division Engineer, 1440 Columbia Pike, Arlington, Virginia or from the address given above. H. J. Spelman, Division Engineer.

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OFFICIAL PROPOSALS

Bids: August 2, 1951

Demolition & Reconstruction of Bridge & Approaches

SEALED PROPOSALS will be received by the undersigned at his office in the Lehigh County Court House, Allentown, Pa., for the demolition of the present Pine St. Bridge and the construction of a new bridge and approaches thereto leading from Pine St., Catasauqua, Pa., to Pine St., Whitehall Township, Lehigh County, Pa., until 11:00 a'clock A.M. (E.D.S.T.) August 2, 1951, and publicly opened after 11:15 o'clock A.M. (E.D.S.T.) of the same day, in the office of the County Commissioners.

Copies of plans, specifications and proposal forms may be obtained at the office of G. Edwin Fidcock Co., Consulting Engineers, E & B Bldg., 546-48 Hamilton St., Allentown, Pa., upon payment of Fifty Dollars ($50.00) for each set. Any bidder, upon returning such set in good condition within ten (10) days after the opening of proposals will be refunded Twenty-five Dollars ($25.00) of his payment.

Each Bidder must deposit with his proposal, a certified check or Surety Company's Bid Bond in an amount of not less than five (5) percent of the base bid in the form as outlined in the "Instructions to Bidders".

Proposals must be sent in on regular forms prepared by the Consulting Engineers in duplicate, in an envelope properly identified, and in the hands of the County Controller at or before the time above mentioned.

No Bidder may withdraw his proposal within fifteen (15) days after the actual date of the opening thereof.

Acceptance of all proposals will be received subject to Lehigh County receiving authority to commence, and authority for allotment of materials for the construction of the said Pine St. Bridge from the Controlled Materials Plan Division of the National Production Authority, Federal Department of Commerce.

The Board of Commissioners of Lehigh County reserves the right to waive any informalities in, or to reject any or all proposals.

ALAN F. WEINSHEIMER,
County Controller

Postponement of Bid Date

Bids: August 23, 1951

Additional Water Supply For Latham Water District, Colonie, New York

NOTICE TO CONTRACTORS

Sealed bids will be received by the Town Board of the Town of Colonie, New York, on the 23rd day of August, 1951, until 7:30 P. M., Eastern Daylight Saving Time, for furnishing all labor, materials and equipment and constructing a filter plant, aerator, pumping station and filtered water reservoir, together with furnishing steel sheet piling and miscellaneous equipment and materials for the project for Additional Water Supply, Stony Creek.

The Information for Bidders, Form of Bid, Form of Contract, Plans, Specifications and Performance Bond may be examined at the office of the Town Clerk, Town Hall, Newtonville, New York, and at the office of Keis & Holroyd, 257 Broadway, Troy, New York. Copies thereof may be obtained at the office of Keis & Holroyd, or from the Town Clerk, upon payment of $25.00 for each set. Any bidder upon returning such set promptly and in good condition, will be refunded his payment, and any non-bidder upon so returning such set will be refunded $20.00.

The Town Board of the Town of Colonie, New York, reserves the right to waive any informalities in or to reject any or all bids.

A certified check made payable to the order of the Town of Colonie, in the amount of Five Per Centum (5%) of the bid must be deposited by each bidder with his bid as a guarantee that in case the contract is awarded to him, that he will, within five (5) days thereafter, execute such contract and furnish a satisfactory performance bond. On failure to do so, he shall forfeit the deposit as liquidated damages and acceptance of the bid will be contingent upon the fulfillment of this requirement by the bidder.

The successful bidder will be required to furnish a performance bond satisfactory to the Town of Colonie, New York, in the amount of the contract, and having as surety thereon, such surety company or companies as are acceptable to the Town of Colonie, New York.

The work will be let in separate contracts as follows:

Section No. 5—General Construction on Filter Plant Building, Grading, Walks, Roads, Etc.

Section No. 5A—Clear Water Well or Filtered Water Storage.

Section No. 5B—Flocculators.

Section No. 5C—Outside Piping at Filter Plant.

Section No. 5D—Installation of Pumps, Motors and Engines.

Section No. 5E—Aerator.

Proposals will also be received on Alternate Plan for Filter Plant as follows:

Section No. 5—Alternate—General Construction on Filter Plant Building, Foundations for Steel Clear Water Well, Grading, Walks, Roads, Etc.

Section No. 5A—Alternate—Steel Tank for Clear Water Well.

Section No. 5B—Alternate—Flocculator or Hydro-Treator.

Section No. 5C—Alternate—Outside Piping at Filter Plant.

Section No. 5D—Alternate—Installation of Pumps, Motors and Engines.

Section No. 6—Filter Plant Equipment, Furnishing and Installing.

Section No. 7—Plumbing at Proposed Filter Plant.

Section No. 8—Heating at Proposed Filter Plant.

Section No. 9—Electrical at Proposed Filter Plant.

Proposals will also be received on Alternate Plan for Filter Plant Equipment, Furnishing and Installing and for Plumbing, Heating and Electrical work as follows:

Section No. 6—Alternate—Filter Plant Equipment, Furnishing and Installing.

Section No. 7—Alternate—Plumbing at Proposed Filter Plant.

Section No. 8—Alternate—Heating at Proposed Filter Plant.

Section No. 9—Alternate—Electrical at Proposed Filter Plant.

No bidder may withdraw his bid within 30 days after the date set for the opening thereof. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof.

WILLIAM K. SANFORD, Supervisor
Keis & Holroyd
Consulting Engineers
Troy, New York
June 30, 1951

(Reception of bids has been postponed until August 23, 1951)

Bids: August 7, 1951

Tilton Road Construction

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

TILTON ROAD, CITY OF NORTHFIELD
Construction of Tilton Road from State Highway Route #4 to Shore Road, in the City of Northfield, Atlantic County, Federal Aid Secondary Project No. S-304). Length 0.739 mile.

Estimated:
- 12,570 sq. yds. Scarifying, etc.
- 18,451 sq. yds. Preparation of Subgrade
- 2,147 tons Bituminous Concrete, FA-BC-1
- 1,363 lin. ft. Concrete Curb
- 23 units Catch Basins & Manholes
- 3,896 lin. ft. Drainage

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J., on Tuesday, August 7, 1951, at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Secondary Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements, and by Sections 2, 3 and 4, P. L. 521, 78th Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service 1433 Bacharach Boulevard, Atlantic City, N. J. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and the work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3498) will be received by Bureau of Reclamation, Denver, Colorado, until August 20, 1951, and then publicly opened for furnishing labor and materials and performing all work for the construction of a headquarters building for the system operations and maintenance area, Davis Dam Project, Arizona-Nevada. The work is situated approximately 3 miles west of Phoenix, Arizona. Principal items are approximately: furnishing and constructing headquarters building, lump sum; excavation, 2,600 cu. yds.; furnishing and placing reinforcement, 20,000 lbs.; furnishing and placing concrete, 140 cu. yds.; and other work. Time allowed for completion will be 300 days. For particulars, address Bureau of Reclamation, Building 1-A, Denver Federal Center, Denver, Colorado.

Contractors Watch

This Section —

for new projects. Publish your announcements through the proposal sections of *Engineering News-Record* and get their bids.

OFFICIAL PROPOSALS

Bids: August 2, 1951

Road Construction

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTE 26 EXTENSION, SECTION 2B
Construction of Route 26 Extension, Section 2B, from Perry Street to Pennsylvania Railroad (Belvidere & Delaware Branch), Bridges, Retaining Walls, and Grading; City of Trenton, Mercer County, Federal Project No. UI-130(6). Length 0.283 miles.

Roadway Items

Estimated:
- 93,485 cu. yds. Roadway Excavation—Earth
- 80,046 cu. yds. Spreading & Compacting Excess Embankment Material
- 3,718 sq. yds. Macadam Base & Intermediate Courses
- 550 tons Bituminous Concrete Pavement

Bridge Items
- 8,508 cu. yds. Concrete in Structures
- 197,215 lbs. Reinforcement Steel in Structures
- 1,081,534 lbs. Structural Steel
- L.S.—Supporting Existing Tracks
- L.S.—Roofing in Bridge

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J., on Thursday, August 2, 1951, at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 23 of the Revised Statutes of New Jersey and supplements and by P. L. 769, 81st Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 6-12 North Willow Street, Trenton, N. J. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Glover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the Standard proposal forms in the manner designated in the standard state Highway specifications and must be enclosed in sealed addressed envelopes bearing the name and address of the bidder and the bid upon the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

OFFICIAL PROPOSALS

Bids: August 9, 1951

The Delaware Memorial Bridge

CONTRACT NO. 9—Fenders

Sealed proposals for construction of the Fenders and the repair of the damaged granite facing of the east tower pier for "The Delaware Memorial Bridge" over the Delaware River, between Delaware and Jersey, will be received by the Delaware State Highway Department at the office of the Director, Delaware Crossing Division, Continental American Building, Wilmington, Delaware, until 11 o'clock Eastern Standard Time, (12 o'clock Eastern Daylight Saving Time) August 9, 1951, at which time and place said proposals will be publicly opened and read.

The work involves the following principal quantities:

Lump Sum	Repair of Pier C
	Granite Facing
490,000 lbs.	Structural Steel
220 m.b.m.	Creosoted Timber
1,200 lin. ft. 3/8"	Wire Rope
60,000 lbs.	Hardware

"Performance of the Contract shall begin as promptly after execution of the contract as work on the other contracts of this project will permit and shall be completed on or before May 1, 1952.

Monthly payments will be made for ninety (90) per cent of the construction completed each month.

Bidders must submit proposals upon forms furnished by the Department.

Each proposal must be accompanied by an acceptable surety bond or certified check for a sum equal to at least ten (10) per cent of the total amount of the proposal.

The Contract will be awarded or proposals rejected within thirty (30) days from the date of opening proposals. The right is reserved to reject any or all bids.

One set of the Plans and two copies of the Specifications may be obtained from the Consulting Engineers, Howard, Needles, Tammen & Bergendoff, 55 Liberty Street, New York 5, N. Y., after July 12, 1951, upon payment of $10.00.

Any prospective bidder who has made such a deposit may secure extra blue print copies of the plans upon payment of 50c per drawing and an extra copy of the Specifications upon payment of $2.50 per copy.

Plans and Specifications need not be returned to the Engineers, and the above payments will not be refunded.

The Plans and Specifications and other contract documents may be examined at the office of the Director, Delaware Crossing Division, Continental American Life Insurance Building, Wilmington, Delaware, or at the office of the Engineers, Howard, Needles, Tammen & Bergendoff.

State Highway Department
J. Gordon Smith, Chairman
W. A. McWilliams, Director
Delaware Crossing Division
Wilmington, Delaware
July 2, 1951.

Bids: October 1, 1951

Notice of Extension of Time and Tendering

QUEENSLAND
DEPARTMENT OF THE
CO-ORDINATOR-GENERAL OF
PUBLIC WORKS
TULLY FALLS HYDRO-ELECTRIC
PROJECT

Specification No. TF/5—Penstock and Haulage
Specification No. TF/6—Tunnel and Surge Tank
and
Supplementary Specification No. TF/6A Underground Power House, Shafts and Tunnels

Notice re Extension of Time and Tendering

Prospective tenderers for any of the above Contracts are hereby advised that the final date for receipt of Tenders has been extended from noon, September 3, 1951, to noon, October 1, 1951.

C. E. Petersen
Secretary
Department of Co-ordinator-General of Public Works.

QUEENSLAND
DEPARTMENT OF THE
CO-ORDINATOR-GENERAL OF PUBLIC WORKS
TULLY FALLS HYDRO-ELECTRIC PROJECT
Diversion Weir, Intake, Conduits, Power House

OFFICIAL PROPOSALS

Supplementary Specification No. TF/6B

Tenders, closing at noon on October 1, 1951, at the Office of the undersigned, are invited for the construction of a Diversion Weir, Hydro-Electric Intake Tunnel, Surge Tank, Penstock, Haulage Way and Power House as an alternative to the works covered by Specification No. TF/5, Penstock and Haulage and Specification No. TF/6, Tunnel and Surge Tank, or for the construction of a Diversion Weir, Hydro-Electric Intake, Underground Power House, Shafts and Tunnels as an alternative to the works covered by Supplementary Specification No. TF/6A, for Underground Powerhouse, Shafts and Tunnels.

Specifications Nos. TF/5 and TF/6, and Supplementary Specification No. TF/6A have previously been issued, and particulars of the work covered by Supplementary Specification No. TF/6B may be obtained from the Chief Engineer, Department of the Co-ordinator-General of Public Works, Cnr. Melbourne and Grey Streets, South Brisbane from whom copies of Plans and Specifications are available.

The lowest or any tender will not necessarily be accepted.

Tenders should be endorsed—"Tender—Tully Falls Hydro-Electric Project, Diversion Weir, Intake, Conduits, Power House".

C. E. Petersen
Secretary
Department of Co-ordinator-General of Public Works.
Box 1856, G.P.O.,
Brisbane, Queensland.

Construction Work For Railroad Bridge

Sealed bids for furnishing labor, equipment, tools and materials for performing all work of cleaning, renewing cover plates, angles, connecting plates, rivets, etc., on three 175-foot spans of single track, pin connected, deck truss railroad bridge over the Rio Grande River between Laredo, Texas, and Nuevo Laredo, Mexico, and painting the structure with one coat of red lead and a protective coat of black paint, will be received by The Texas Mexican Railway Company at Laredo, Texas, until 10:00 A.M., Central Standard Time, August 21, 1951, and then publicly opened.

Further information upon application to S. K. Mason, Chief Engineer, Phone 2696, Laredo, Texas.

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-3496) will be received by the Bureau of Reclamation, Denver, Colorado, until August 9, 1951, and then publicly opened for furnishing one 54-inch inside diameter welded-plate-steel outlet pipe and appurtenances for Cachuma Project, California. Delivery is desired within 300 days. For particulars, address Bureau of Reclamation, Building 1-A, Denver Federal Center, Denver, Colorado.

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3494) will be received by Bureau of Reclamation, Ephrata, Washington, until August 8, 1951, and then publicly opened for furnishing labor and materials and performing all work for the construction of earthwork and structures, Potholes East Canal Station 1370+50 to Station 2189+41.75, Ringold wasteway Station 0+00 to Station 240+20 and lateral PE 47 Station 0+00 to Station 2+29.88, Columbia Basin Project, Washington. The work is situated near Mesa, Washington. Principal items are approximately: 2,850,000 cu. yds., excavation; 4,000 cu. yds., concrete; furnishing and installing 7 radial gates; and other work. The work is divided into 4 schedules. Time allowed for completion will be 725 days. For particulars, address Bureau of Reclamation, Ephrata, Washington; or Building 1-A, Denver Federal Center, Denver, Colorado.

Read the Official
Proposal Columns of
ENGINEERING NEWS-RECORD
This Week and Every Week

SEARCHLIGHT SECTION

EMPLOYMENT • BUSINESS • OPPORTUNITIES • EQUIPMENT—USED or RESALE

UNDISPLAYED RATE:
(Not available for equipment advertising)
$1.50 cents a line, minimum 3 lines. To figure advance payment count 5 average words as a line.
EMPLOYMENT WANTED & INDIVIDUAL SELLING OPPORTUNITY undisplayed advertising rate is one-half of above rate, payable in advance.
PROPOSALS, $1.25 a line an insertion.

INFORMATION.
BOX NUMBERS count as 1 line additional in undisplayed ads.
DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).
EQUIPMENT WANTED or FOR SALE Advertisements acceptable only in Displayed Style.

DISPLAYED—RATE PER INCH:
The advertising rate is $14.25 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.
AN ADVERTISING INCH is measured 7/8 inch vertically on one column, 3 columns—30 inches —to a page. E.N.R.

NEW ADVERTISEMENTS received by July 30th at the New York City Office, 330 W. 42 St., N. Y. 18, will appear in August 9th issue subject to space available

STRUCTURAL ENGINEERING
A Course of Instruction by Mail

FOR FORTY YEARS our courses have helped thousands to better positions and to pass State Board Examinations.
Information sent without obligation. Write today.

WILSON ENGINEERING CORP.
College House Offices - Dept. E.
Harvard Sq. Cambridge, Mass.

DESIGNERS AND CHECKERS
WANTED
In steel and concrete for industrial buildings. Steady employment, and top salaries paid for competent men.
ARCH ROOF CONSTRUCTION CO., INC.
113 W. 42nd St. New York City

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (18)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

CIVIL SERVICE

WANTED: BY Missouri State Highway Department, Jefferson City, Missouri, several experienced detailers and designers on reinforced concrete and steel bridges. Permanent position. Give complete details of education and experience.

POSITIONS VACANT

STRUCTURAL DESIGNERS and Draftsmen wanted by Baltimore consultant for indeterminate reinforced concrete and steel structures. Good salaries, paid overtime and vacations. State Education, detailed experience, tentative reporting date and salary requirements in first letter. P-1280, Engineering News-Record.

EXPERIENCED AND qualified estimator for general building construction. Must be thoroughly familiar with building plans and experienced in pricing and purchasing for building construction. Applicant should submit a proven experience record. A very attractive proposition can be offered to a qualified man preferably under 40. Location in Southwest. P-1287, Engineering News-Record.

STRUCTURAL STEEL Detail Draftsmen and Checkers. All types of Structures. Vacation, group insurance, good working conditions. Only top quality men. Send complete written information. Bristol Steel & Iron Works, Inc., Bristol, Virginia-Tennessee.

WANTED: EXPERIENCED Estimator for General Contractor's Office in Pittsburgh engaged in building construction. Good working conditions and chance for advancement. P-1325, Engineering News-Record.

WANTED—GRADUATED civil or structural engineer as field representative, Ohio, by long established engineering, promotional and educational organization. Give resume of education, engineering experience and salary requirements. Prefer age 25-45. P-1418, Engineering News-Record.

ENGINEERS

DESIGNERS & DRAFTSMEN

Electrical, Mechanical
Structural & Hydraulic

Reinforced Concrete
Designers & Detailers

FOR WORK ON

Industrial Plants
Paper & Textile Mills
Water Supply & Waste Disposal
Steam & Hydroelectric Power Plants
Electrical Transmission & Distribution

CHAS. T. MAIN, Inc.
80 Federal Street
Boston 10, Mass.

POSITIONS VACANT

FIELD ENGINEER—for progressive steel fabricator and erector in eastern U. S. Prefer young, single man, minimum of three years' building surveying experience, with car and willing to travel. Job involves checking foundations prior to erection of steel. Plenty of work, headaches, responsibility, and opportunity. P-1415, Engineering News-Record.

WANTED: EXPERIENCED Mechanical Engineer to work on design of automatic glass machinery. Location North Central Pennsylvania. Community of approximately 3,000 population, situated in the heart of the Allegheny Mountains. Ideal working conditions. Applicants address all inquiries to Engineering Department, Pittsburgh Corning Corporation, Port Allegany, Pennsylvania.

ENGINEERING SALES. Prefer Civil Engineer and or experience with reinforced concrete, building design and construction. 50% travel. Georgia location. Immediate need. Send complete qualifications, recent photograph and state salary desired in first correspondence. P-1442, Engineering News-Record.

(Continued on page 98)

ESTIMATOR
BUILDING CONSTRUCTION

OLD ESTABLISHED DETROIT, MICHIGAN GENERAL CONTRACTING COMPANY SPECIALIZING IN INDUSTRIAL AND INSTITUTIONAL WORK HAS PERMANENT POSITION FOR EXPERIENCED ESTIMATOR. GIVE FULL PARTICULARS AND QUALIFICATIONS.
ADDRESS
P-1344, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

SHEET PILING SALESMAN
Extensive Contacts With Users Either For Rent Or Sale Necessary
SW-1350, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

DRAFTSMEN • DESIGNERS • ENGINEERS

needed for essential work on the national Atomic Energy Program at

THE LOS ALAMOS SCIENTIFIC LABORATORY

Los Alamos, New Mexico

operated by the

UNIVERSITY OF CALIFORNIA

for the

Atomic Energy Commission

In The Mountains of Northern New Mexico

- 2 DAYS CUMULATIVE PAID VACATION PER MONTH
- 1½ DAYS CUMULATIVE PAID SICK LEAVE PER MONTH
- HOUSING AVAILABLE AT REASONABLE RENTAL
- MOVING EXPENSES PAID

Write to

E. W. Doty, Los Alamos Scientific Laboratory,

Los Alamos, New Mexico

WANTED

General Superintendent and Manager for construction firm.

Must have the following qualifications:

1. **Knowledge and experience of general construction.**
2. **Must have ability of knowing how to take off quantities.**
3. **Knowledge of cost.**
4. **Knowledge of managing office and staff.**
5. **Must be very presentable in knowing how to meet the public.**
6. **Must know how to handle men in office and field.**
7. **Must be in a position to leave for Alaska.**
8. **This job is well paid for the right man. Do not apply unless the applicant possesses the above qualifications. Must have good references and must show years of experience in the construction business. Enclose photograph.**

P-1122, Engineering News-Record
330 W 42 St., New York 18, N. Y.

CONSTRUCTION SUPERINTENDENT

Experienced in construction of Open Hearth Plants. Must be a good organizer, able to handle labor and qualified to exercise executive ability. Compensation commensurate with ability of individual.

Write and furnish full information regarding education, training, chronological details of experience, age, salary expected, etc. All replies will be considered strictly confidential.

P-1101, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

SANITARY ENGINEER

Manufacturer of Sewage and Water Treatment Equipment requires the services of an experienced engineer with practical and educational background. Mid-western location. Please submit full particulars in reply which will be held in confidence.

P-1440, Engineering News-Record
520 No. Michigan Ave., Chicago 11, Ill.

CONSTRUCTION SUPERINTENDENT

OLD ESTABLISHED DETROIT, MICHIGAN GENERAL CONTRACTING COMPANY HAS PERMANENT POSITION OPEN FOR AN EXPERIENCED JOB SUPERINTENDENT SPECIALIZING IN LARGE INSTITUTIONAL AND INDUSTRIAL WORK. GIVE FULL PARTICULARS AND QUALIFICATIONS.

P-1341, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

REINFORCED CONCRETE

Unusual opportunity for competent, experienced Superintendent. Must be aggressive and cost-conscious. Write promptly detailed account of experience, with special emphasis on reinforced concrete frame structures. Salary open.

P-1291, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

DESIGNERS, DRAFTSMEN, ELECTRICAL - MECHANICAL - STRUCTURAL. JOB LOCATED IN MIDDLE WEST. EXCELLENT WORKING CONDITIONS. GOOD SALARY. OLD ESTABLISHED COMPANY.

P-9872, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

CONSTRUCTION SUPERINTENDENT

Experienced in construction of Blast Furnaces. Must be a good organizer, able to handle labor and qualified to exercise executive ability. Compensation commensurate with ability of individual.

Write and furnish full information regarding education, training, chronological details of experience, age, salary expected, etc. All replies will be considered strictly confidential.

P-1102, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

WANTED

ENGINEERS

. . . to train as . . .

Industrial Consultants in Fire Protection Engineering

full pay to start—complete training field engineering with top U. S. and Canadian industry—usual pension and other benefits. Permanent.

Write complete qualifications to

P-9609, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

DESIGNERS ENGINEERS

Arthur G. McKee & Company has permanent openings at their Cleveland, Ohio, Union, New Jersey and Tulsa, Oklahoma offices for men experienced as:

STRUCTURAL DESIGNERS
CONCRETE DESIGNERS
PIPING DESIGNERS
PRESSURE VESSEL DESIGNERS
ELECTRICAL DESIGNERS
CHECKERS

We are interested in men experienced in Design of Blast Furnaces, Steel Mills, Oil Refineries or similar Heavy Construction Design.

We pay among highest wages in the industry.

Our employees share annually in profit-sharing bonus which is paid in December.

Five-day week; 45 hours per week.

Allowance for moving expenses.

DESIGNERS OF SINTERING PLANTS

Permanent openings at our Cleveland, Ohio offices.

Must be thoroughly familiar in all phases of Sintering Plant Design and capable of advancement.

Please write and submit complete details as to education, experience, age, salary expected, etc.

ARTHUR G. McKEE & COMPANY
2300 CHESTER AVENUE CLEVELAND 1, OHIO

ASSISTANT PROJECT MANAGER

Large Construction program vicinity of Cincinnati.

Thorough knowledge of building construction, including estimating, purchasing, expediting, cost distribution.

Ability to deal with owners—union—sub-contractors, etc.

Good personality and appearance.

Give complete resume of education, experience, salary and other pertinent data in first letter.

DUFFY CONSTRUCTION CORP.
Post office Box 111, Lockland 15, Ohio
Carl H. Walter, Personnel Mgr.

ENGINEERS

ELECTRICAL - MECHANICAL - STRUCTURAL

Openings in Ohio and New York offices offering long term employment with good salary for qualified Group Leaders, Designers and Draftsmen experienced in one or more of the following phases of industrial plant design:

Electrical Power, lighting layouts and electrical controls.

Mechanical Plant layout, process piping, conveyors, heating and ventilation, boiler houses, process equipment layout, refrigeration, plumbing, tanks and vessels, packaging equipment, special machinery and equipment.

Structural Structural steel and reinforced concrete.

Please submit complete resume stating experience, education, salary required and availability date.

THE H. K. FERGUSON COMPANY
Engineers and Builders

The Ferguson Bldg. 1783 E. 11th St.
Cleveland 14, Ohio

19 Rector Street
New York 6, N. Y.

INSTRUCTORS WANTED: TEACHING POSITIONS:

(1) Instructor for mechanics and surveying. Salary not to exceed $5,000.00 for nine months. (2) Assistant Professor for highways and highway research. Salary up to $4,800.00 for twelve months. Write

Civil Engineering Department,
Mississippi State College,
State College, Mississippi.

WANTED
BRIDGE DESIGNERS
DESIGNER DRAFTSMEN
RESIDENT HIGHWAY ENGINEERS

Experienced men wanted. State qualifications, age, salary and date available in first letter. Location, Western Pennsylvania.

P-9982, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

WANTED

EXPERIENCED GRADE and DRAINAGE Superintendents, foremen, and engineers, for large airport project located in Northern Florida.

Address all inquiries to:

L. G. DEFELICE & SON, INC.
Nettleton Ave. North Haven, Conn.

(Continued from page 95)

SELLING OPPORTUNITY OFFERED

SALES OPENING: Sales engineer for conveying and weighing equipment, also compressors, in Tri-State area. Location Pittsburgh. Small company. Excellent opportunity. SW-1324, Engineering News-Record.

EMPLOYMENT SERVICE

SALARIED PERSONNEL, $3,000-$25,000. This confidential service established 1920, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L, 241 Orange St., New Haven.

POSITIONS WANTED

SANITARY ENGINEER—Age 33, married. 5 years design experience—2 years with metropolitan sanitary district, 3 years private consulting engineers. Experienced with design of sewer systems, pump stations, water supply systems, sewage treatment plants, sludge lagoons, concentration tanks. Experience also includes checking, specification writing, material take off, estimating and customer contacts. Complete resume and references upon request. Presently employed. PW-1421, Engineering News-Record, Chicago.

CIVIL ENGINEERING Draftsman and Surveyor. N.Y.S. Lic. 50. Over 25 years municipal experience, highways, waterworks, sewers, etc. A-1 references. Reply PW-1437, Engineering News-Record.

NOTICE: MECHANICAL man available. Would like to make a connection with large mechanical contractor or large building or engineer type contractor that is interested in setting up a mechanical dept. I am sober, married, and have one child. My experience consists of about 25 years in the plumbing, heating, ventilating, process piping, and high pressure steam installations on such high type buildings as hospitals, office industrial plants, water treatment and power plants. Dams, and mass production of large housing projects. Also as labor, material takeoff supervision, expediting detailing layout and dept. head. My material connections are excellent. I also have a large man power following as material takeoff and supervisors and expeditors. PW-1429, Engineering News-Record.

CIVIL ENGINEERING Graduate, 40, 15 years experience field and office construction, location of highways; construction, division maintenance of railroads; public works. Some estimating and design experience. Desire position in private industry. PW-1432, Engineering News-Record.

CONSTRUCTION EXECUTIVE. Administrative Architect, Project Manager and Contact Man. Designer of Architectural and Industrial Type Buildings. 25 years experience in architecture, engineering, general contracting, and property management. Long in-full-charge of work experience. Graduate Architect-Engineer. Registered. PW-1249, Engineering News-Record.

EQUIPMENT SUPERINTENDENT, 50. Over 20 years experience operation and maintenance of heavy equipment. Well experienced heavy rigging, dirt work and underground installations. PW-1242, Engineering News-Record.

DIVER-FRANK HEFLING, formerly Chf. S.F. U.S. or foreign work. Passport. Capable deep water. 17 yrs const. salvage, surveys, special jobs outfitted. Record underwater torch. Modern phones, safety power compressor, single unit lifeline. Experience designer air lift, dredging, excavating, dewatering. Miami, Fla.; 268 S.W. 8th St. Phone 3-8089.

PIPING SUPERINTENDENT experienced in the installation and design of natural gas—Oil-Hydraulic and Power piping. Capable of complete responsibility—high degree of organizing through knowledge of men. 35 years of age. Available June 15 to July 1st. Phone Florida 1-9963 in Cleveland, Ohio. PW-1361, Engineering News-Record.

HYDRO CIVIL ENGINEER, M.ASCE.

Experienced in layout, design and estimating of major hydraulic structures for Hydro Power Schemes, Irrigation and Watersupply; also long experience in building construction and contracting. Desires position as designer, estimator or supervisor. Available very soon. Write

PW-1420, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

POSITIONS WANTED

ESTIMATOR, ASST PROJECT Manager. Takeoff, pricing, purchasing, costs, sub-contracts, expediting. Experienced, energetic, general construction. New York. PW-1272, Engineering News-Record.

GENERAL FOREMAN. Age 40, desires position in Latin America. Proven experience in all types of welded steel construction. Previous Latin American experience. PW-1256, Engineering News-Record.

CONSTRUCTION SUPT. and Engineer, extensive experience in subdivision housing including surveying, estimating, purchasing, and actual const. and layout. Degree in E.E. Available Sept. 1. 2500 Lavete Lane, Pueblo, Colorado.

QUARRY SUPERINTENDENT. Production Manager, experienced operator in trap, granite and limestone, thoroughly familiar modern practice producing ferrick stone, riprap, asphaltic and concrete aggregates, agglime. Married, 48 years old, available immediately, any location if salary in line. Excellent references. PW-1398, Engineering News-Record.

CIVIL ENGINEER, P.E., 30 years engineering and architectural experience all types of heavy construction, housing, commercial structures, private and Government work. Design, bidding, contract negotiations, specifications, estimating, field and office supervision. Some foreign experience languages. Wishes domestic or foreign assignment with owner, architect, builder or contractor where business experience and mature judgment are required. PW-1352, Engineering News-Record.

BUSINESS OPPORTUNITY

Dock Building Business for Sale. Malcolm Davis, Nokomis, Florida.

WANTED

ANYTHING within reason that is wanted in the field served by Engineering News-Record can be quickly located through bringing it to the attention of thousands of men whose interest is assured because this is the business paper they read.

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Our Craftsmen do
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- Experienced craftsmen do all work.
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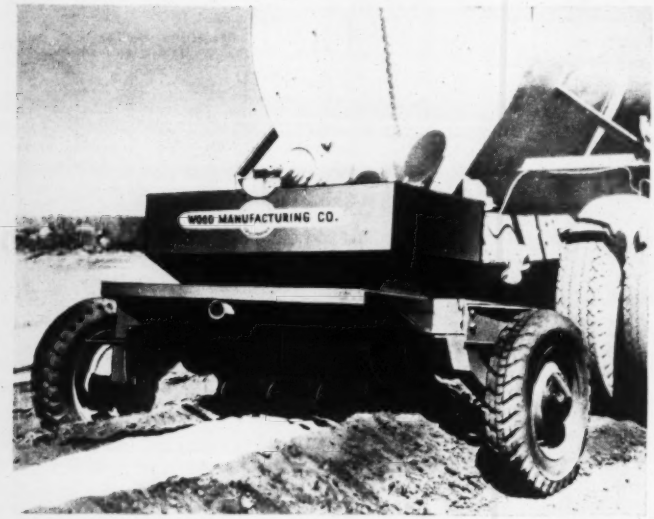
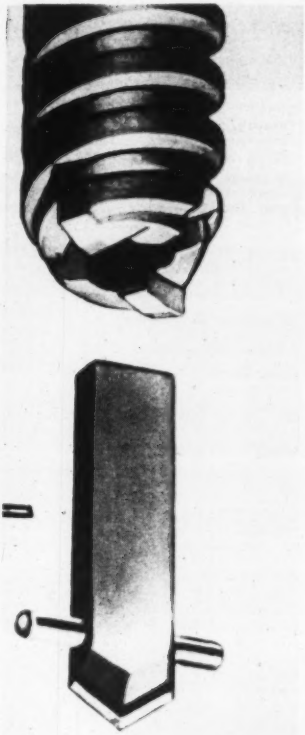


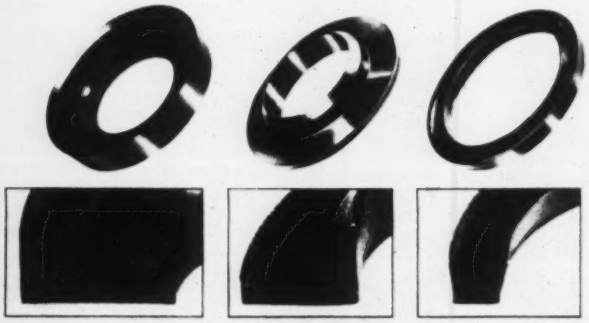
Rubber-tired cement distributor

For use with bulk cement, the rig is attached directly behind a cement truck. Cement is dumped into the hopper on the distributor and by means of a calibrated rotary vane is metered on to the windrows, which have already been automatically troughed by an axle-high V-spreader on front of the distributor. Windrow is deep enough to prevent all but most extreme winds from blowing cement. Rig can also be used with sack cement, and has an adjustable capacity of fifteen to eighty pounds per lineal foot. Wood Manufacturing Company, Box 620, 6900 Tujunga Avenue, North Hollywood, California.



Masonry drill bit

Said to accurately locate and start a hole without the use of a wooden templet in concrete, glazed tile or other masonry materials, the Cyclocore drill bit with removable Cyclocenter has machined-in spiral threads running the full length of the body to expel dust. As soon as a hole is spotted, the center is removed. Designed for drilling holes ¾ in. in diameter and up, the bit has a port opening for cleaning out the core. New England Carbide Tool Co., Cambridge 39, Massachusetts.



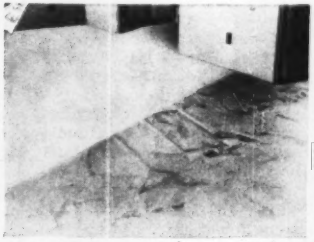
Hydraulic-peumatic packings

Often the weak link in hydraulic and pneumatic equipment, packings may fail and lay up for repair pumps, motors, valves, etc. Periflex packings are molded under heat and high pressure from special fabric and neoprene compound and are thus superior in such types of equipment, manufacturer states. Available designs include cup, flange, "U" ring and "O" ring in hundreds of sizes. Periflex Inc., Hazel Park, Michigan.

Utility spray tank

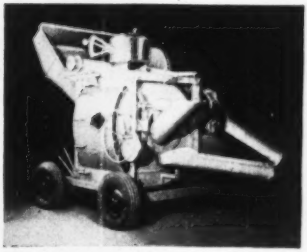
The basic operations performed by a large distributor handling bituminous materials are: loading material from an outside source, circulating it while heating, spraying through various lengths of bar, and transferring material from one point to another without entering its own tank. For several thousand dollars less than the cost of a big distributor, the "101 Utility Spray Tank" is said to perform all these functions as well as any others which can be accomplished with

a heating kettle and motor spray attachment. Available in three types: single axle trailer (with 400 and 600-gal capacity), two-axle trailer and skid type without trailer for mounting on truck chassis or flat-bed truck. LITTLEFORD BROS. INC., CINCINNATI 2, OHIO.



Rubber floors

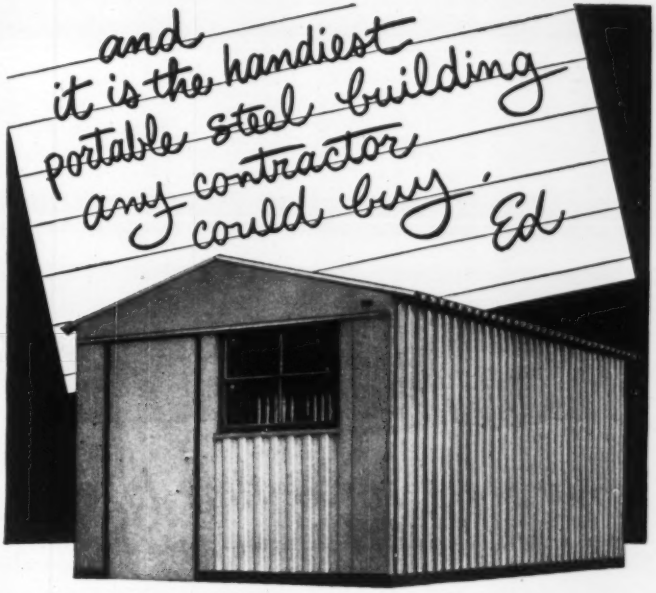
A new synthetic rubber flooring material called Vulcrete is said to have exceptional strength, resistance to heavy point loads and long life. Resistant to acids and alkalis as well, it dries in a pleasing light concrete color, bonds well without prior fixing to wood, metal, concrete, slate, etc. Also recommended for patching, leveling and resurfacing floors as well as for general waterproofing and pointing. FLASH-STONE COMPANY INC. 30 E. RITTENHOUSE ST., PHILADELPHIA 44, PA.



Half-yard mixer

Non-tilting machine features spring suspension, adjustable V-belt drive, reduction gears enclosed in oil-tight case, enclosed mechanism for skip vibrating, spring stabilizers for charging and mixing cycles. Equipped with 4-cylinder air-cooled gasoline engine, it can also take a radiator type or electric motor if desired. Batchmeter with locking device and counter available. Optional equipment is 90-inch open end skip for loading directly from batch trucks. T. L. SMITH COMPANY, MILWAUKEE, WISCONSIN.

(Continued on next page)



USF "Handy Hut" PORTABLE
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Fast, simple erection and dismantling plus an ideal size range make this the handiest portable steel building manufactured—for field offices, storage, and many other purposes. All steel precision fabricated . . . just bolt the framing, and attach side wall sheets and roofing by special clip and wedge fasteners. Approximately 10′ x 12′ of floor space in the basic size; additional lengths, in multiples of two feet, provide a size range up to 10′ x 20′. Clear headroom of 7½′. All sections are light enough for easy manual handling.

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USF UNITED STEEL FABRICATORS, INC.

WOOSTER, OHIO

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(*Based on Hartford Claims #12B17040, #12B17617 and #12B18309*)

As is common in the building business, we handle payrolls on a cash basis. Recently we were caught in a crime wave that started when one of our men who was delivering the payroll at the site of a small job was jumped by two bandits who got away with $1145! Then a few months later burglars cut through the steel wire fence around our main office, forced a door and emptied two safes of $18,318 in payroll and other funds. *Within three months* the same thing happened again, and the yeggs got $1188.

These losses, totaling $20,651, would have crippled us if we hadn't had Hartford insurance. The Hartford reimbursed us fully, and also paid an additional $718 to repair our damaged safes and premises.

• • •

The risk of handling large sums of cash in contracting operations makes *proper* insurance a must! Hartford's Broad Form Paymaster Insurance is ideal for this purpose. This protection covers both holdup and burglary and many other causes of losses as well.

Ask your Hartford agent or your insurance broker to explain its features, or send coupon for free descriptive literature. In more than 5000 communities you can locate your nearest Hartford agent by calling Western Union by number and asking "Operator 25".

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New products . . .

Selective two-way radio

One of the few faults to be found with two-way radio installations on construction jobs is that everybody hears everybody else's calls, conversation, decisions, etc. Often when one brass hat at the office wants to talk to another, in a mobile unit, he must ask him to find a land phone and use it if he wants to keep the conversation private. Then again, continuous calls to an individual who has necessarily left his vehicle and doesn't answer certainly harass others who hear the repeated calls.

Now General Electric has developed the first all-electronic radio communications system which allows a headquarters dispatcher controlling a large number of units to talk privately to an individual driver. He may also talk with a particular group of cars or pickups, or all at once if desired.

With this new equipment, a two-way radio system can be separated into as many as ten groups. To reach a particular driver the dispatcher pushes a button which sends out a coded signal, activating only those receivers in the driver's group. All drivers hear the call, but only the individual called answers. Other receivers are then silent on subsequent transmissions because these messages are not preceded by the coded signal. Manufacturer also believes that driver fatigue, caused in part by the strain of listening to every call to catch those intended for himself, should be decreased greatly. GENERAL ELECTRIC CO., SCHENECTADY 5, NEW YORK.

Liquid water repellent

Clear silicone base liquid water repellent for exterior masonry is recommended for use on concrete, concrete blocks, brick, stucco, mortar joints, unglazed tile, asbestos shingles, marble and stone. One application keeps water out of masonry for periods up to five years is claim of manufacturer. Penetrating solvents which make up its content enter from $\frac{1}{16}$ to $\frac{1}{8}$ in. upon application. Unlike ordinary water repellents, however, it will not plug up pores or prevent transpiration of air. Coverage is estimated from 100 to 300 sq. ft. per gallon depending upon porosity. THE CHEM INDUSTRIAL CO., 1114 HIPPODROME BUILDING, CLEVELAND 14, OHIO.

(*Continued on page 110*)

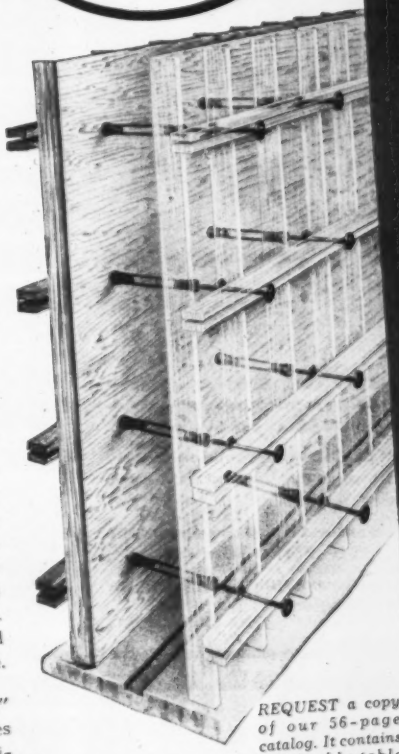
SUPERIOR *Cone-Fast* COIL TIES

YOU CAN CUT YOUR FORM COSTS!

Because the cost of form work is a prime factor in the total cost of bridge piers and abutments, retaining walls, filtration and sewage disposal plants, and other engineering projects, it is obvious that the forming phase offers the greatest opportunity to save material and reduce labor costs.

The use of Superior Cone-Fast Coil Ties is one direct means of cutting costs and here's why: The *exclusive* feature of this tie is the extension of the coil beyond the ends of the wire struts (enlarged detail above) which allows a reamed Coil Cone to be fitted snugly in place before the opposing panel is erected. No separate gadgets are required. Cone-Fast ties are practically a "must" when large panels are used on walls where the workman cannot get inside the forms. Cone pointed Coil Bolts are easy to engage because of the large square openings in the cones. Bolt Holders (shown on panel form) keep bolts and washer on panel when stripping and moving for reuse.

Cone-Fast Coil Ties are available for Coil Bolts ½" to 1¼" in diameter and can be used with all types of forms. All working parts are returnable. For maximum efficiency plan your form work with SUPERIOR Cone-Fast Coil Ties.



REQUEST a copy of our 56-page catalog. It contains a valuable table for spacing studs, wales, and form ties.

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Fits perfectly, assembled quickly because cutting and fitting are not necessary.

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We invite your inquiries about engineered timber construction. An illustrated booklet, "Timber Members", which describes our services and products, is yours for the asking. Get a copy from your nearest Timber Structures representative; or fill in and mail the coupon.

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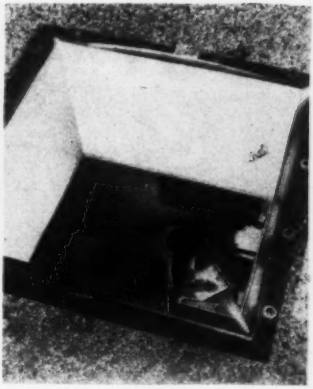
New products . . .



Roof windows

Described by one user as doing for a roof what picture windows do for walls, the new Wascolite Sky Domes are prefabricated in standard sizes. They are Plexiglas domes attached to metal frames and fit standard openings without adjustments. Manufacturer's tests claim 62% more light admitted. Standard models are furnished with clear, ultra-violet ray absorption domes. In hospitals and the like where these rays are desirable, however, units can be provided which admit these rays. Translucent domes are furnished where greater diffusion of light is needed. In the picture above, an otherwise unusable dark hallway was turned into an extra office with installation of four domes. WASCO FLASHING COMPANY, CAMBRIDGE, MASS.

Laminated bomb window

After considerable testing a special window has been developed to minimize effects of explosions. The glass-plastic laminate known as Flexseal Bomb Glass will resist normal atmospheric pressures, but when these are exceeded by a blast or sudden pressure wave, the window opens automatically by folding about its edges, minimizing possibility of flying glass. Outer layer of laminate is glass, middle sheet is partially segmented polyvinal plastic, and inner layer consists of four triangularly-shaped pieces of glass. The plastic layer extends beyond glass edges and is fastened to the window to act as a hinge and permit the four segments to swing in like doors when the outer glass is broken. The plastic will stretch to 400 per cent of its unstressed

(*Continued on page 112*)

300,000 YARDS

maintenance still too low to be figured

Two of the eight Worthington Blue Brute Wagon Drills that broke cost records for Rock Construction Corporation. Note the amount of line drilling.

President Walt Dunham and Engineer A. Bruce Lattanzi in the company's Downsville Dam office.

Two 500[1] Worthington Blue Brute Air Compressors supplying air for drills at the Downsville Dam.

Line drilling in blue stone is child's play to those Worthington Blue Brute Wagon Drills.

Rock Construction Corporation of Kingston, New York, working on the Downsville Dam weir and waste channel, got service out of eight wagon drills that constantly amazed them.

Walt Dunham, president, reported: "We have drilled as much as 700-800 feet per 8-hour day per machine. In 165 working days, the machines put out 300,000 cu yds with so little maintenance it can't be figured in cost per yard."

This job also used a number of Worthington Blue Brute Hand-Held Rock Drills. Says Mr. Dunham: "There has been absolutely no maintenance cost. Our operators like them better than anything they have ever used."

Worthington Blue Brute Rock Drill operating ahead of the wagons collaring hole for laying out line drilling.

Contractors everywhere know that a Worthington Blue Brute team—air compressor and tools—makes mincemeat out of even the toughest jobs. See your nearby Worthington distributor for a demonstration. Worthington Pump and Machinery Corporation, Construction Equipment Division, Dunellen, N. J.

WORTHINGTON

Buy Blue Brutes

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IF IT'S A CONSTRUCTION JOB, IT'S A BLUE BRUTE JOB

5 REASONS WHY CLEVELANDS DIG REAL PROFITS

Because CLEVELANDS dig faster—engineered higher capacity and bonus power back up your schedules, cut costs on your entire operation. Because CLEVELANDS are more versatile—compact design, hairline maneuverability and a wide range of trench sizes let them handle more different kinds of work in the tightest places. Because rugged CLEVELANDS put in more work-time—staying out of the repair shop, giving you a 12-month digging season, loading quickly for fast jumps between jobs. Because CLEVELANDS cost less to operate and maintain. And because CLEVELANDS deliver a longer working life, as proved by the high percentage of early models still in regular service. Get complete performance data and specifications today. The Cleveland Trencher Co., 20100 St. Clair Avenue, Cleveland 17, Ohio.

SEE YOUR LOCAL DISTRIBUTOR

CLEVELAND TRENCHERS

New products . . .

length, the manufacturer states, and return to within half of one percent without rupture. After opening and return, the segments may be fastened together with tape, putty, etc.; affording transparent protection until entire window can be replaced. PITTSBURGH PLATE GLASS COMPANY, 632 DUQUESNE WAY, PITTSBURGH, PENNSYLVANIA.

Stock cart ladders

When a person's weight is put on a step of this ladder, the casters automatically retract, putting two rubber-tipped legs in contact with the floor surface. Especially designed for use with stock carts, these "Stockart" ladders are adjustable for push-bar heights of 30 to 38 inches. All-welded, they are made from ¾-in. steel tubing and expanded metal steps. BALLYMORE COMPANY, WAYNE, PENNSYLVANIA.

New Product Briefs

What's New In Plastering is a full-color slide presentation by the U. S. Gypsum Company to equip everyone in the lathing and plastering industry with more facts to help him sell the merits of plastering. It will be shown by U.S.G. representatives throughout the country to lathing and plastering contractors, tradesmen, apprentices, union officials, dealers and salesmen. Write the company at 300 West Adams, Chicago, Illinois.

Metal and paper calking cartridges are available with flexible plastic nozzles that can be reshaped permanently by the use of flame or hot water and adapted for a variety of calking uses. Fresh calk is assured even under storage conditions. Gibson-Homans Co., Cleveland.

MANUFACTURERS' PUBLICATIONS

Flooring—"Over the Rough Spots" is the title of a 32-page pocket size booklet which gives a searching analysis of your flooring problems. Graphically illustrated, it explains methods of protecting both concrete and wood flooring as well as corrections for bad floor conditions. STONHARD COMPANY, 1306 SPRING GARDEN STREET, PHILADELPHIA, PA.

Chain drives and conveyors—Installation and operation of this type of equipment is discussed in the first section of a 32-page booklet, followed by chapters on care of sprockets, lubrication and maintenance, inspection and storage, and finally, adjustments and repairs. Center spread shows chart for determining lubrication of drives, taking into consideration pitch diameter, rpm's and slow, medium, high and extremely high speeds. CHAIN BELT COMPANY, 1600 W. BRUCE STREET, MILWAUKEE 4, WISCONSIN. DEPT PR.

Asphalt plants—Two new bulletins, 4 pages each, are available in loose-leaf manila file covers. One is devoted to operators' experiences with the equipment; the other to construction details of plants which are available in batch capacities from 500 to 6000 pounds. Stress is laid on synchronized operation. STANDARD STEEL CORPORATION, 5001 S. BOYLE AVENUE, LOS ANGELES 58, CALIFORNIA.

Motor graders—Two-color catalog presents advantages and usefulness of two largest graders of five manufactured by Allis-Chalmers. Cutaway views provide close-up inspection of their power supply, transmissions and final drives. Attachments include canopy top or closed cab, odometer for recording mileage, V-type snowplow and six-position seat. Copies available from any A-C dealer or ALLIS-CHALMERS MANUFACTURING COMPANY, TRACTOR DIVISION, BOX 512, MILWAUKEE 1, WISCONSIN.

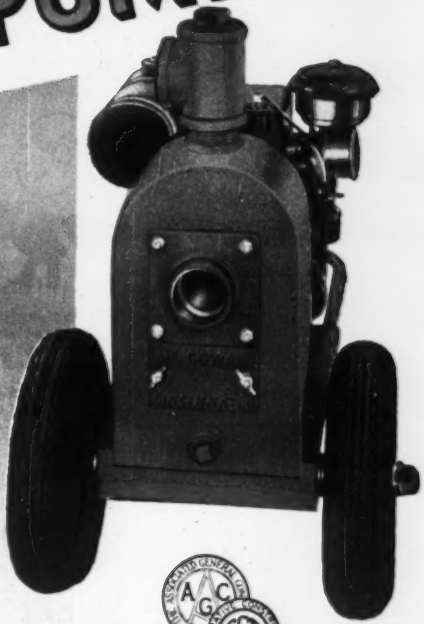
Recording and indicating instruments—Chart records of indisputable evidence are marked daily by recorders, indicators and controlling devices of all kinds, as shown in this 24-pager. Thermometers, pyrometers, pressure and vacuum gauges, flow meters, flow ratio controllers, liquid level recorders, humidity instruments, tachometers, time-program controllers and so on ad infinitum are all described and illustrated. Folder also includes list of 17 branch offices, 15 sales engineers and

(Continued on page 116)

best for the job

- SELF PRIMING
- CENTRIFUGAL

McGOWAN PUMPS



These rugged McGOWAN all welded steel pumps are lighter, yet stronger, more durable than any you've ever seen. They feature — automatic priming • non-clogging impeller hardened wear plates • large access plates • tested and trouble free shaft seals.

SINCE 1952 McGOWAN PUMPS

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McGOWAN PUMPS

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McGOWAN PUMP DIV., Leyman Mfg. Corp.
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Please send without obligation data on McGowan self priming centrifugal pumps.

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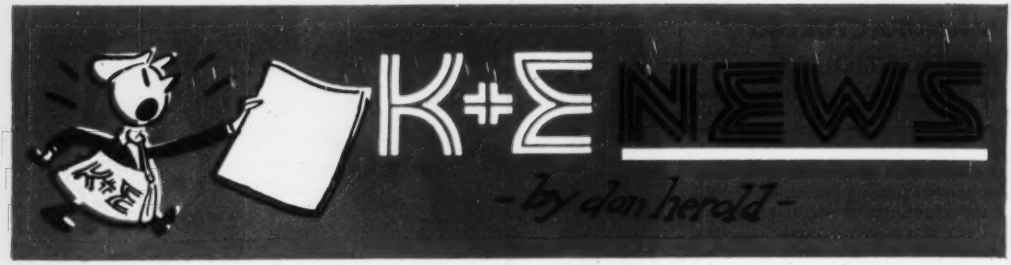

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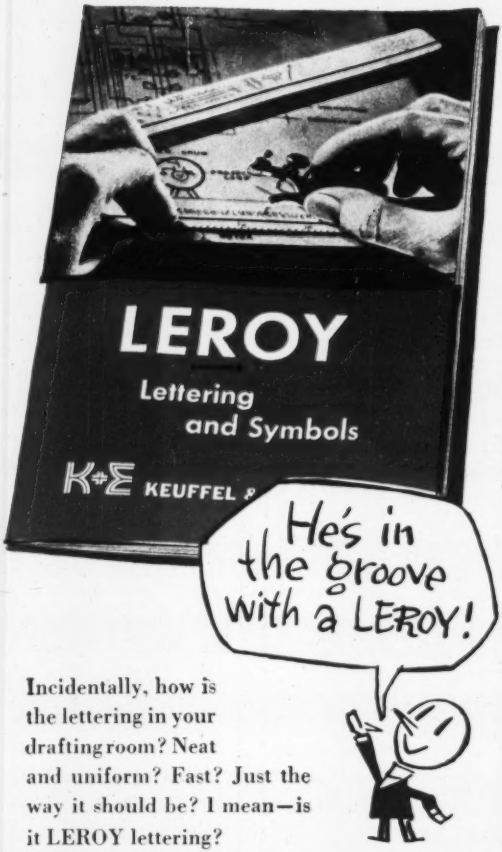

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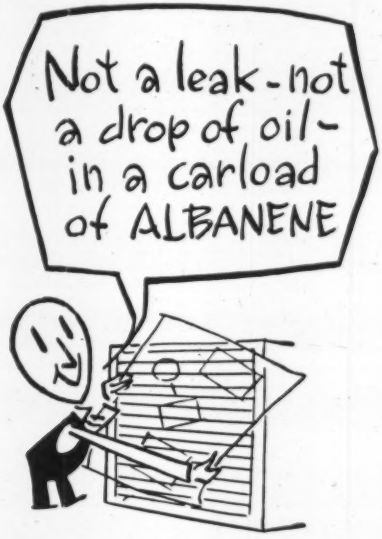

No more loss of transparency and poor reproductions. No more aging, yellowing or turning brittle.

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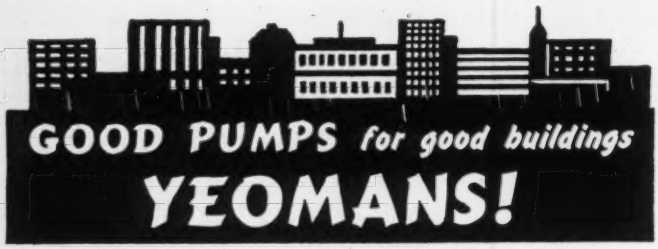


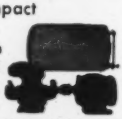
GOOD PUMPS *for good buildings*

YEOMANS!

For all basic pumping functions in a building there are Yeomans Pumps that will give long years of quiet dependable performance.

WATER SUPPLY — Since 1898 Yeomans has been solving problems of water supply and circulation in buildings of every kind. Many thousands of successful installations emphasize the soundness of Yeomans Engineering.

CONDENSATION RETURN — Compact design and sound engineering are conspicuous features of Yeomans Pumps in heating systems. They can be depended upon for efficient performance, long life and a minimum of maintenance.



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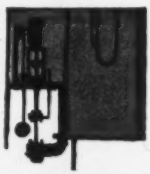

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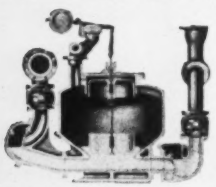

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MANUFACTURERS' PUBLICATIONS

3 branch factories. THE BRISTOL COMPANY, DEPT R, WATERBURY, CONNECTICUT.

Elevators—A new booklet, "The Modern Hospital and Its Elevator Needs" is slanted toward architects, engineers and administrative officials concerned with or engaged in planning new hospital buildings or remodeling and modernizing an existing one. Twenty-four actual installations are described and illustrated. Separate sections are concerned with automatic controls, entrances, freight elevators, dumb waiters and "hospital size" elevators. OTIS ELEVATOR COMPANY, 260 11TH AVENUE, NEW YORK 1, N. Y.

Metal partitions—Page after page of suggested installations of Mills Metal Partitions include those designed for schools, hospitals, industrial plants commercial buildings and the like. Construction details have been drawn with painstaking care. Lightproofing, dustproofing and soundproofing are all described, along with complete specifications. Accessories include dozens of items, including glass, hardware, hose cabinets, shelving, transoms and the like. THE MILLS COMPANY, 983 WAYSIDE ROAD, CLEVELAND 10, OHIO.

Induction voltage regulators—A complete line of them greatly widens the field of application in which uniform voltage control is obtainable with small regulators. These Inductrols are designed for circuits rated 3 to 240 kva, 60 cycles, single-phase, and from 120 to 600 volts. Eighteen-page folder describes various types available for automatic operation, hand operation and manually-controlled motor operation. GENERAL ELECTRIC CO., SCHENECTADY 5, NEW YORK.

Equipment distribution—Entitled "It Takes All Three", this information-packed 16-page booklet describes the necessary co-ordinated efforts of manufacturing, construction and equipment distribution in construction work today. It explains how the equipment distributor helps keep construction moving by providing, for manufacturers, sales outlets, warehousing of parts, trade-ins, financing etc; Equally providing for contractors with central sources of supply, financing, parts, repair and overhaul etc., the distributor is geared for progress. Cleverly written and highly illustrated by ASSOCIATED EQUIPMENT DISTRIBUTORS, 360 NORTH MICHIGAN AVENUE, CHICAGO 1, ILLINOIS.

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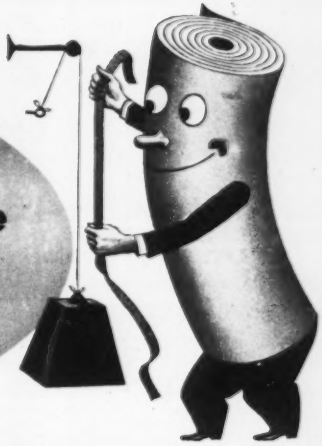

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MANUFACTURERS' PUBLICATIONS

Diesel parts books—Three Owners Parts Books cover main items used in (1) Marine Models, (2) Industrial Models and (3) Two-cylinder models. Prepared as aids in determining exact parts which may be required for maintenance of engines. All "Factory Engineered Parts" are numbered and labeled exactly for quick order and delivery. Available to owners of Diesel engines concerned. DETROIT DIESEL ENGINE DIVISION, GENERAL MOTORS CORPORATION, DETROIT 28, MICHIGAN.

Steam—Sixteen questions and answers written for the executive who doesn't know too much about steam beyond the fact that it's expensive. Written in "shirt-sleeve" english, the provocative title is "How Increasing Your Steam Costs Can Save Money". Available from SARCO COMPANY INC., EMPIRE STATE BUILDING, NEW YORK 1, NEW YORK.

Chicago plans regional port district for Calumet

Establishment of a Chicago regional port district is being planned under state legislation which went into effect July 1. Its jurisdiction is limited by law to Calumet River areas in Cook County and a small part of Du Page County, north of Lemont.

Planning of waterway transportation and terminal projects for recommendation to the legislature will be a major function of the district authority. Construction funds would have to be provided by the legislature, because the authority has no taxing powers. The authority will start with an appropriation of $40,000, but future operating expenses will have to be met from fees.

The law specifies that the authority shall consist of seven commissioners, four to be appointed by the governor and three by the mayor. They will serve without pay. A paid manager and secretary have been authorized.

In 1946 Congress voted $100 million for the widening of the Calumet-Sag channel and the deepening of Calumet Harbor. It withheld the funds, however, until "certain conditions" were met. The new port district authority, it is believed, will be able to meet these conditions, which require the acquisition of land by the local government to widen the channel and to rebuild bridges.

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Letter from SAN DIEGO—

How to have water by not wasting it

San Diego County is determined to abstain from too much liquid consumption in order to keep from going dry.

Temperance in all things, you might say.

The boom that has followed increasing military and industrial expansion is the reason. The enlarged facilities, plus the population increase to serve them have been literally draining San Diego dry. The rate is such that within the first five months of this year as against last, water use is up nearly 30%.

Even if the reservoirs were full, the present water system might need revamping. The present aqueduct simply cannot carry all the water that the county will need if population growth continues.

• Power dry—The San Diego County Water Authority just completed studies that show dangers ahead for the area: If the present water use trend continues, 118,000 acre-ft of water will be needed in any given year by various agencies, while the present aqueduct is capable of delivering only 73,000 acre-ft. That is a potential squeeze guesstimated at 45,000 acre-ft of water.

Here is a sizeable amount, especially when you consider that the present 73,000 acre-ft is now possible only by pushing the aqueduct beyond normal water carrying capacity, with extra care being taken to chlorinate and otherwise keep out slime growths in the pipelines.

These are problems growing from the fact that men have failed to act.

And there is another side to the story.

It seems that since 1944 nature hasn't been living up to pre-1944 standards of winter waterfall and "normal" runoff. Either there has been a decade of "subnormal" runoff, or the people in these parts are going to have to decide that they have a new, small-package delivery.

• A shortened norm—So it has come about that while the county water authority talks about a 1944 normal, they are now counting on an exceptional small winter runoff this year following last winter's all-time low.

There are two causes for the water shortage, and back of all the fuss and clever promotion is a big MUST. Curtailment of water use at the end of the pipeline MUST make up the difference between what the aqueducts will deliver, and what may or may not be in the reservoirs for delivery come next spring.

Another winter like last year's might present the people here with a pretty dry 1952, if they are allowed to go on blithely letting faucets drip, and toilets leak, and sewerage pipes to have unsealed connections.

• They beat the drum—So it is that a great deal of organization and newspaper publicity has been enlisted to rouse the public and save the county. The danger, as you see, is very great.

Not so long ago 150 citizens from all parts of the county met in San Diego to form a countywide Citizens Water Conservation Program. Backing them up was an already organized six-man committee.

And then it happened. Publicity hit the population as local conservation committees formed to bring home the big story through the press, the Parent-Teachers' Associations, the Churches, women's clubs, schools, and publicity brochures. (They sent them out with bills.)

Now a special finance committee of the Water Conservation Committee has made general assessments so that sufficient funds are available to carry on until January first of 1952.

• Plumbers for free—There is more than cooperation asked of water users.

There is cooperation proffered by the Plumbing Contractors Association, which will fix—free—any dripping fixture brought to several shops throughout the city.

Those residents suffering from leaky toilets—a secret drain on the water supply—are also provided with something free: Hose washers and coloring powder.

Men who dare, under all this public pressure, to water their lawns are also advised not to make the stream so strong that water runs off and into the sewerage system. The water, people are told, should be saved for the grass.

Different target days have been set in the various sections of the county in which the water users have been asked to cut down consumption. It is still a little difficult to measure just how effective the whole program has been, but there was, around the 29th of June it was, an estimate that 1,434,263,913 gallons of water have been stored up for use next year just during May and June.

One agency showed a 22% reduction for a thirty day period in overall consumption as against last year. Contrast this with a 12% increase in consumers over the past 12 months!

• Another duct—Of course there are some other things being done to take care of things should the water supply ever get up near normal again. The county does recognize that if people keep on moving in they will simply have to have another aqueduct.

The County Authority, which is made up of ten agencies representing about 80% of the water used in the County have been carrying on preliminary steps toward construction of a second barrel for the San Diego Aqueduct.

The Bureau of Reclamation has just completed an engineering and feasibility report which is up for handling by the Budget Bureau. From them it will go to Congress for action.

It is estimated that the job would cost $15,000,000 and be repayable over 40 years.

To hurry things along, the Water Authority has proposed that actual construction plans and specifications be prepared by the Metropolitan Water District immediately with personnel of the Navy assisting in an advisory capacity, to eliminate delay. This might save four to six months of time. But a second barrel will not deliver water before the season 1953-1954. But even then it may be that population growth will tend to strain the new facilities.

Meanwhile, consumers are to tighten their faucets or else. If cooperation doesn't do the trick, rationing will.

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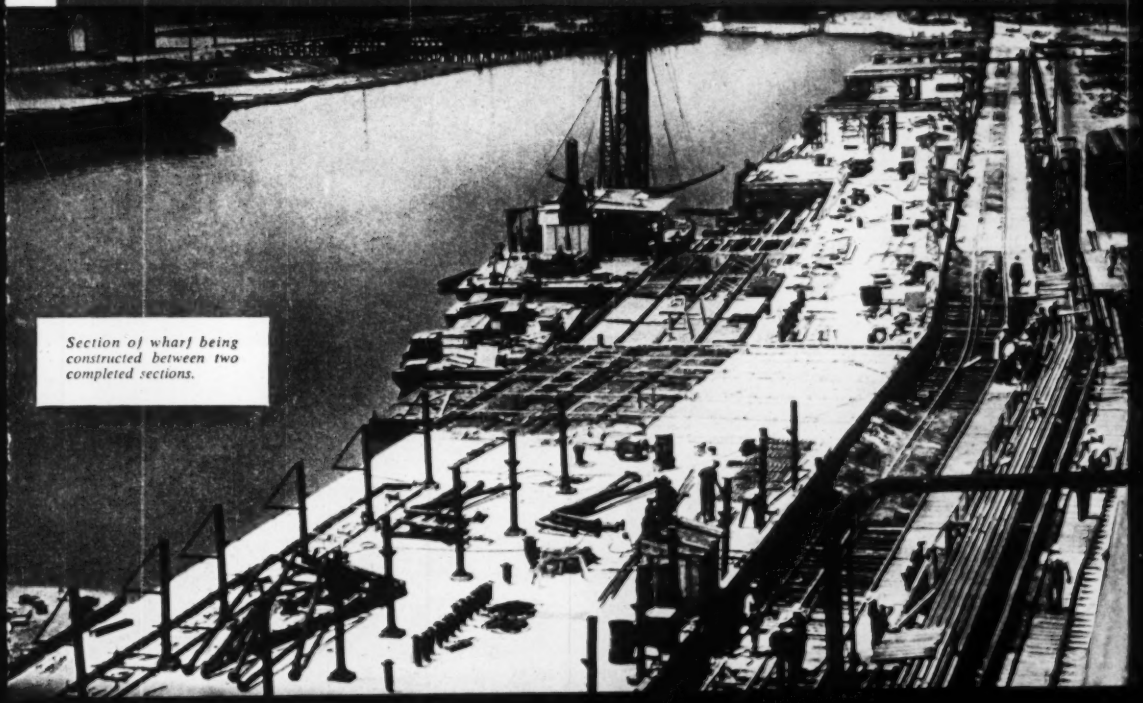

Section of wharf being constructed between two completed sections.

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